STATE ROAD 19 AND LUSHER STREET INVESTIGATION

including:

19th and Lusher Street (# 42)

17th and Lusher Street (# 43)

West Indiana and Franklin Ave (# 44)

ELKHART COUNTY HEALTH DEPARTMENT

GROUNDWATER PROTECTION SECTION

January 20, 1988

ACKNOWLEDGEMENTS

The following members of the Elkhart County Health Department participated in the investigation and preparation of this report:

Richard T. Brown, M.P.S.
Director
Environmental Division

Max D. Michael
Groundwater Protection Program Coordinator
Environmental Division

Michael A. Furfaro
Groundwater Protection Specialist
Environmental Division

Peggy S. Dorsey
Environmentalist
Environmental Division

Sandra Good, R.P.S.
Environmentalist
Environmental Division

STATE ROAD 19 AND LUSHER STREET

INTRODUCTION AND BACKGROUND:

In the Spring of 1987, Gemeinhardt began an investigation mandated from an agreement signed with the U.S. Environmental Protection Agency (USEPA). This company, located at 57882 SR 19 South, Elkhart, Indiana, contracted with EIS Environmental Engineers in South Bend, Indiana, to design and perform hydogeological study of the area. The Elkhart County Health Department (ECHD) entered into an agreement with EIS to endorse this study, and in turn received the raw data generated. Based on the data received by ECHD in the fall of 1987 (see Map A), a sampling campaign to determine the exact extent and type of contaminants present in the SR 19 and Lusher area was begun.

METHODS AND MATIERIALS:

The samples were obtained using 2-40 ml VOC bottles, and were iced immediately after sampling. The results were obtained using a Varian 3300 Gas Chromatograph configured with an O.I. 4460 Purge and Trap and Liquid Sampling Module. The detector used was an O.I. 4420 ELCD. The method used followed EPA Method 601, except the column used was a Supelco VOCOL wide bore capillary column, with the G.C. temperature programmed at 35 degrees C. for 7 minutes, up 6 degrees C. per minute to 110 degrees C., and held for 5 minutes. The results were obtained on a Varian 4290 intergrator.

RESULTS AND DISCUSSION:

I) Sampling Campaign Description and Results

The sampling campaign was started on September 15, 1987. There were a total of three different sampling rounds denoted as 19th and Lusher, 17th and Lusher, and West Indiana and Franklin. See Table 1 for sample points and the contaminants found.

A) 19th and Lusher Sampling

This area was sampled between September 15 and September 29, 1987. A total of 59 samples, numbered L-1 through L-59, were obtained (see Map B for locations and general results). These results indicated that 40 of the 59 samples had at least trace amounts of VOC's, and of these, 14 samples exceeded the MCL for at least one of the VOC's. These results also indicated that an area to the east may have been affected. Because of this, the sampling in the 17th and Lusher area was begun on October 8, 1987.

The main contaminant was 1,1,1-Trichloroethane (TCA), but it exceeded the MCL (200 ppb) in only 1 well out of the 29 wells that showed TCA present above a trace amount. Trichloroethlene (TCE) was found in 20 wells, and exceeded the MCL (5 ppb) in 13 wells. None of the levels of TCE exceeded the removal level of 128 ppb.

B) 17th and Lusher Sampling

This area was sampled on October 8 and October 9, 1987. A total of 17 samples, numbered L-60 through L-76, were obtained (see Map B for locations and general results). Of these, 16 samples showed at least trace amounts of VOC's, and 9 samples exceeded the MCL for at least one VOC. It was during this round that one sample, L-65, was found to exceed the removal level (128 ppb) for TCE. The EPA was notified at this point.

The main contaminant was TCE, with 9 wells out of 15 wells above the MCL (5 ppb). There were 3 wells which were found to exceed the removal level of 128 ppb. TCA was also present in 12 wells, with 2 wells above the MCL (200 ppb) and 1 of these above the removal level (500 ppb).

C) West Indiana and Franklin

After the data was accumulated and plotted for the first two sampling rounds, it was decided that the area north of Lusher and the railroad tracks should be included in this investigation (see Map C). There were a total of 70 samples obtained during this round, numbered L-77 through L-145, which occured on October 23 and October 29, 1987. Of these, 52 samples were found to contain at least trace amounts of VOC's, and 17 of these samples exceeded the MCL for at least one VOC.

The main contaminant was found to be TCA, with 44 wells showing detectable concentrations. Of these, 8 wells were found with levels exceeding the MCL (200 ppb) and 3 wells were above the removal level (500 ppb). TCE was found in 40 wells, with 17 wells above the MCL (5 ppb), and 1 of these wells exceeded the removal level (128 ppb).

II) Discussion

Results were distributed to each well user, by means of one of the three letters in Appendix 1. Overall, 54 wells were found to exceed MCL's, 55 wells were found to be between trace levels and the MCL's, and 36 wells were found to contain no contaminants (see Table 1 and Map D).

Based on these results, Ken Theisen of the USEPA Region V visited the ECHD on November 3, 1987. Five samples were taken on November 4th to confirm the levels of the most contaminated wells (see Table 2).

The major contaminant found was TCA followed by TCE. The USEPA, based on the results they obtained November 4th and the ECHD results, offered point-of-use filters to 13 residences and businesses, and city water hook-ups to 2 residences (see Appendix 2) as an emergency remedial action. Of these 15, only one point-of-use filter was refused.

As of January, 1988, the USEPA is still investigating what type of permanent solution to put into place in these areas. A final decision is expected in the spring of 1988 as to the type and extent of the permanent solution.

UPDATE:

The U.S. EPA completed city water hook-ups to those locations who were originally given a point-of-use filter during the spring of 1989. (See the attached list for these specific locations.)

The Indiana Department of Environmental Management began their own water testing campaign during the summer of 1989 for the remaining residents. The reason for this stems from the criteria used by the EPA in determining who would receive federal assistance. The EPA will provide a filter or city water hook-up to those individuals on a private water supply who have chemically contaminated drinking water which is within 50% of the Removal Levels (RL's) set by the EPA. However, for municipal water supplies the EPA uses Maximum Contaminant Levels (MCL's) to determine federal assistance. MCL's are much lower than RL's, therefore a wide gap is created and many of the residents in this area fell into this category. In other words, they have drinking water which is too highly contaminated to be consumed if it were municipal water, but it falls within the limits set for a private water supply. The IDEM has set a policy whereby they will provide these people with filters or city water hook-up at the state's expense. The state has taken the stance that if it is not adequate for municipal needs it is also not adequate for a private well.

Based on this, the IDEM will be using the ECHD data as well as their own to identify these locations, assess their needs, and then provide some type of remediation for them, ie filters or city water.

PHONE CONVERSATION RECORD

Conversation with:
Name Jay Drybread
Company Project Manager, State Cleanup Section
Address FDEM

Phone (317) 243-5187

Date 8/23/89
Time 8:45 (AM)/PM

☑ Originator Placed Call
☐ Originator Received Call

Subject Looking for probable source of ground water contamination in the Tucker area of Elkhart

8/16 Notes: Working with superfund sites. Jay is trying to identify "probable sources" for the Tucker Ave area groundwater contamination. He has information from the EPA: Homes and action already done in this area not needed because he already has info. from EPA.

People from FDEM will be coming up next week to put filters in and replace existing filters in the Tucker Ave. area. Replacing 20 EPA in use filters.

Jay's office took 40 water samples in the Tucker area. Filters are now being used but the home owners may have to connect to city water in the future, maybe within one year. FDEM needs to make a policy decision about requiring them to hook up - if so then who pays.

8/23 Spoke with Jay - told him he should contact Tim Byers (523-4270) - Community Right to Know - local level - to get info. Also told him to get MSDS sheets.

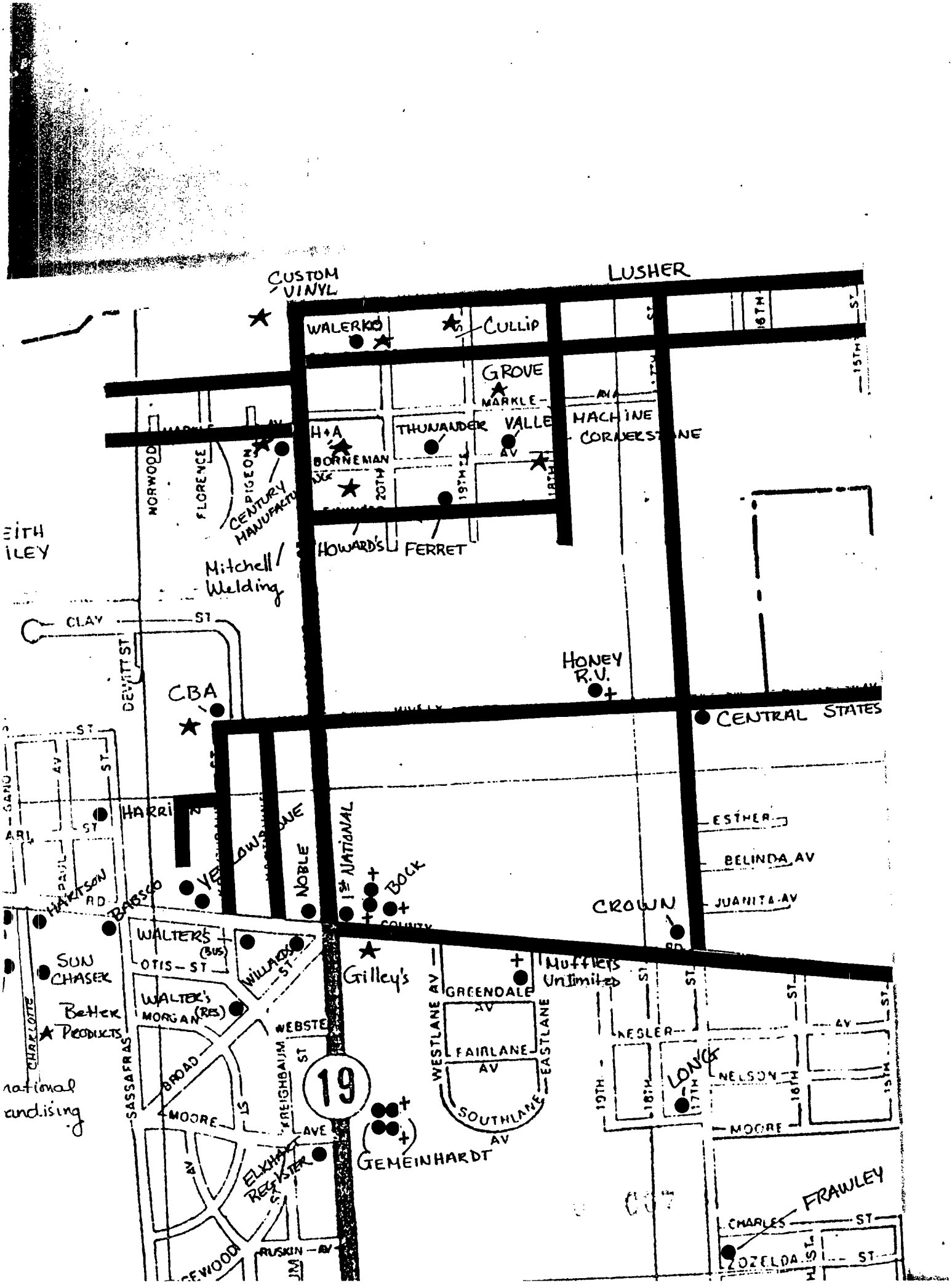
☐ File ____/____/____

☐ Follow-Up By: ____

☐ Copy/Route To: ____

Follow-Up-Action: ____

Originator's Initials CS


CUSTOM VINYL
LUSHER
WALERKO
CULLIP
GROVE
MARKLE
H+A
THUNANDER
VALLE
BORNEMAN
HOWARD'S
FERRET
NORWOOD
FLORENCE
CENTURY MANUFACTU
Mitchell Welding
CLAY ST
DEWITT ST
CBA
HONEY R.V.
CENTRAL STATES
HARRI
ESTHER
BELINDA AV
JUANITA AV
CROWN
NOBLE
1st NATIONAL
BOCK
COUNTY
HARRISON RD
BABSCO
YE
WALTERS
(BUS)
OTIS ST
SUN CHASER
Better Products
WALTER'S MORGAN (RES)
Gilley's
Muffler's Unlimited
GREENDALE AV
WEBSTER
BROAD
SASSAFRAS
CHARLOTTE
MOORE
ELKHART REGISTER
GEMEINHARDT
WESTLANE AV
EASTLANE
FAIRLANE AV
SOUTHLANE AV
NESLER
LONG
NELSON
MOORE
FRAWLEY
CHARLES ST
ZOZELDA ST
RUSKIN AV
19

Originator

PHONE CONVERSATION RECORD

Conversation with:
Name Ghetta Hawvermale
Company IDEM
Address
Phone (317) 243-5060

Date 1/9/88
Time 8:30 (AM)/PM

☐ Originator Placed Call
☒ Originator Received Call

Subject filter changes for the Ind Ave + Lisbon St. Cases

Notes: Mr. Ray Powers called me on 12-28-88 wanting info on how long his filter would last. After talking with him + looking up his address in the case file, I felt I needed to speak with the EPA. Ken Theisen at the EPA said Ghetta Hawvermale @ IDEM is to change the filters once per year at state expense. This was based on a letter he received from Ghetta on April 19th, 1988.

When I spoke with Ghetta she said she never was given the appropriate info. on the case. In order for her to change the filters she must receive from the EPA:

1) a complete list of filter locations in this area
2) documentation of sample results taken after filter installation to prove filters were functioning

I told her I would contact Ken + relay the info.

☐ File
__/__/__

☐ Follow-Up By:
☐ Copy/Route To:

Follow-Up-Action:

Originator's Initials P.J. Jorsey

Originator

PHONE CONVERSATION RECORD

Conversation with:
Name Kathy Simonson
Company IDEM
Address (Gretta Haworth's Section)
Phone 243-5192 (317)

Date 1/26/89
Time ____ AM/PM

☐ Originator Placed Call
☒ Originator Received Call

Subject Filter Changes at Ind. Ave + Lusher St areas

Notes:
Kathy Simonsen is the new project manager for IDEM WRT this case.
She will be up in the near future to start sample H_2O filters to determine if break through has occured or not.
She will come in to meet with ECHD when she is in town.

☐ File ____/____/____

☐ Follow-Up By: ____

☐ Copy/Route To: ____

Follow-Up-Action: ____

Originator's Initials P. Dorsey

Originator

PHONE CONVERSATION RECORD

Conversation with: —

Name Ken L.

Company US EPA

Address _____

_____

Phone _____

Date 1/12/88

Time _____ AM/PM

☒ Originator Placed Call

☐ Originator Received Call

Subject Lud. Ave. Filters

Notes: I let Ken know of the conversation I had w/ Gretta Hauvermale WRT the filters being changed in the Lud. Ave. area.

I said she needed from the EPA

1) a formal request

2) list of filters to be changed

3) sample results from each location proving that they were working originally

Ken said he had already done #1 + #2 and that he never does # 3 anywhere. He tested the first few that were ever used and none since. He said he would call Gretta and talk to her about the situation and let me know the outcome.

☐ File _____

__/__/__

☐ Follow-Up By: _____

☐ Copy/Route To: _____

Follow-Up-Action: _____

Originator's Initials L. J. Darsey

Originator

To: Peggy

Date 12-28-88

Time 2:00 pm

NAME Ray Powers

COMPANY

PHONE 295-7843 call in P.M.

TELEPHONED		✓	CALLED TO SEE YOU
WILL CALL AGAIN			WANTS TO SEE YOU
PLEASE CALL		✓	RUSH

LEFT THIS MESSAGE: How long does water filters last. He's from the canal area. Bangor Twp.

1529 Okema

NEWS PRINTING COMPANY, INC.
Goshen News Building
114 South Main Street Goshen, Indiana 46526
PH. (219) 533-2151

PHONE CALL

FOR Peggy D DATE 1-5 TIME 250 A.M. P.M.

M Gretta Hauversmale

OF Dept of Env Mgmt

PHONE 317 243-5060
AREA CODE NUMBER EXTENSION

MESSAGE

case #44

SIGNED Eileen

PHONED / RETURNED YOUR CALL / PLEASE CALL / WILL CALL AGAIN / CAME TO SEE YOU / WANTS TO SEE YOU

RM 4003

CONVERSATION RECORD

Date 1 / 12 / 88

Time AM/PM

☒ Originator Placed Call

☐ Originator Received Call

...w of the conversation I had ...e WRT the filters being changed ...a. ...needed from the EPA ...sest ...to be changed ...m each location proving ...king originally ...done #1 + #2 ...anywhere. He tested ...used and none since. ...Gretta and talk to her ...let me know the

☐ File

/ /

☐ Follow-Up By:

☐ Copy/Route To:

Follow-Up-Action:

Originator's Initials P. Dorsey

Door-to-Door Delivery on July 6, 1988 of forms offering Temporary Water Via a Filter System
Elkhart, Indiana

Twenty three properties were visited by a representative of EIS Environmental Engineers on July 6, 1988 to deliver a form (see attached form and letter) offering free installation of a filter system and to inquire into any apparent problems concerning free connection to city water. All landlords previously had been contacted, either by personal visit or by mail, concerning free connection to city water. The following list contains the landlord's name and address, address of potentially contaminated property, and notes concerning the visit.

1) Mr. James E. Leers
1916 Fieldhouse
Elkhart, IN 46516

Note: Forms given to James Leers.

2) Mrs. Irene Truman
28141 Fieldhouse Ave.
Elkhart, IN 46517

Note: Mrs. Truman returned a signed form on June 8, 1988 indicating that she did not want city water. She also declined previous offers of free connection to city water. When questioned on July 6, 1988 as to her reasons for refusing the offers she stated that she simply did not like city water. She would not accept additional forms for connection to city water or temporary filters.

3) Mr. and Mrs. Richard C. Lightfoot
P.O. Box 99
Portage, IN 46368

Concerning Boss Manufacturing at 1918 Markle Ave.

Note: Forms for city water had been returned on June 6, 1988; however, the forms had been signed by Mr. Moore, the tenant, rather than by Mr. Lightfoot, the landlord. Additional forms for city water and temporary filters had been mailed to Mr. Lightfoot on June 27, 1988, but he had not returned them as of July 6, 1988. Mr. Moore was not in on July 6, 1988 and was thus unable to explain if there was a problem obtaining the landlord's signature.

012

4) Thunander Corp.
1923 Markle
Elkhart, IN 46517

Note: Forms given to Mr. Ed Piscione. Mr. Piscione indicated that Thunander plans to accept the free connection to city water although they have not returned water-hook-up form to date.

5) Merle Stouder
60409 CR 15 S.
Elkhart, IN 46514

Concerning property at 2004 & 2006 Markle Ave

Note: Forms given to Mr. Stouder's son. Water-hook-up form had not been returned.

6) Mr. Martin Alig
One Saint Joseph Mannor
Elkhart, IN 46516

Concerning property at 2011 Markle

Note: Mr. And Mrs. Dale Laws, tenants, were not home on July 6, 1988. Forms were mailed to Mr. Alig on July 6, 1988.

7) Mrs. JoAnn A. Guthrie
1915 Borneman Ave.
Elkhart, IN 46514

Concerning JoAnn's Bar at 1915 Borneman Ave.

Note: Mrs. Guthrie indicated that she will probably decline the filter because no contamination was found in her well.

8) Mr. Jack Livingston
11472 Jefferson Rd
Osceola, IN 46561

Concerning Schuster Sheet Metal at 1900 Borneman.

Note: Form given to Mr. Jack Livingston.

9) Mrs. Virginia M. Mullins
1938 Borneman Ave.
Elkhart, IN 46516

Note: Mrs. Mullins returned a signed form June 10, 1988 indicating that she did not want city water. She was not home on July 6, 1988; however, additional forms for both free connection to city water and temporary filters were given to her son in case she reconsiders her decision.

10) Mr. Charlse Weber and Mr. Don Smith
57977 CR 18
Goshen, IN 40506

Concerning Weber Manufacturing at 2016 Borneman Ave. and house at 2000 Borneman Ave.

Note: Forms given to Mrs. Weber.

11) Mr. and Mrs. Thomas Hood
H & A Auto
2033 Borneman Ave.
Elkhart, IN 46517

Note: Form given to Mrs. Wanda Hood.

12) Mr. Marvin Burnette
2316 S. Nappanee St.
Elkhart, IN 46517

Concerning property at Ok Car Co., 2316 S. Nappanee St. and 2035 Borneman Ave.

Note: Forms given to Mr. Bernett.

13) Mr. Wesley R. Baker
1919 Leininger Ave.
Elkhart, IN 46517

Note: Form given to Mr. Baker.

14) Mr. and Mrs. Mike Freel
57589 Edwards St.
Elkhart, IN 46517

Concerning property at 1923 Leininger Ave.

Note: The tenants indicated that they were not planning to accept the free connection to city water because their well was clean. Additional forms for both free connection to city water and temporary filters were given in case they reconsidered. The same forms were mailed to the landlord on June 27, 1988 but had not been returned by july 6, 1988.

15) Mr. George McMeekan
Ferret, Inc.
1926 Leininger Ave.
Elkhart, IN 46516

Note: Form given to Bob Sowale (office worker) to give to Mr. McMeekan.

16) Carolyn Yoder
1931 Leininger Ave.
Elkhart, IN 46517

Concerning property at 1931 Leininger Ave.
1929 Leininger Ave.
and 2003 Leininger Ave.

Note: Form given to Mrs. Yoder.

17) Craig Keller
1928 Leininger Ave.
Elkhart, IN

Note: Not at home on July 6, 1988; however, forms were mailed to Kellers on June 27, 1988.

18) Mr. And Mrs. Leonard Paff
Howards Wrecker Service
2000 Leininger Ave.
Elkhart, IN 46517

Note: Forms given to Mrs. Kronwitter, tenant.

19) Linda Collins
51501 CR 5 N.
Elkhart, IN 46514

Concerning property at 2030 Leininger Ave.

Note: Forms for both city water and temporary filter were left with the Mrs. Debra Bender, tenant.

20) Mr. and Mrs. John Thalheimer
2013 Leininger Ave.
Elkhart, IN 46517

Note: Form given to Mrs. Rocky Hoffman, tenant.

21) Like-New Services
2109 Sheridan
Goshen, IN 46526

Concerning property at 2017 Leininger Ave.

Note: Form given to Mrs. Dare, tenant.

22) Mrs. Betty Vaughn
57670 Krieghbaum
Elkhart, IN 46517

Note: Note home on July 6, 1988.

23) Astro Cab
28049 CR 20 W
Elkhart, IN 46517

Note: Form given to manager.

C16

<date>

<title> <fname> <lname>
<address>
<city>, <state> <zip>

Re: Your Property in Elkhart, Indiana Located at
<address>

Dear Property Owner:

This letter is a follow-up to our earlier letter advising you of a project to provide free hook-ups to the Elkhart Public Water System.

Prior to installation of the hook-up to your property, a temporary water purification device (i.e. carbon filter) to ensure an uncontaminated drinking water supply is being offered, free of charge. You are strongly encouraged to take advantage of this offer.

A form is enclosed to indicate whether or not you would like a free temporary water purification device until the city water hook-ups can be made. A pre-addressed, stamped envelope is also enclosed to return your completed form to us. In order to provide the temporary water purification devices as soon as possible, we would appreciate receiving your reply within fourteen (14) days from the date of this letter.

Questions concerning this letter may be addressed to Mr. John Wingard of EIS Environmental Engineers, Inc. by telephoning him collect at 219/277-5715.

Sincerely,

EIS ENVIRONMENTAL ENGINEERS, INC.

John R. Wingard, P.E.
Senior Engineer

JRW/jmd

Encl.

cc: Richard Brown, Elkhart County Health Department

QUESTIONNAIRE FOR TEMPORARY WATER SUPPLY

RESPONDENT

_____
NAME

MAILING
ADDRESS

_____
STREET

_____
CITY, STATE, ZIP

PROPERTY STREET ADDRESS

_____
ADDRESS

Do you want a free temporary water purification device until hook-up to the Elkhart Public Water System can be provided?

_____ YES _____ NO

How many taps supply water for drinking at your property?

_____

How many gallons of drinking water per day (best estimate) are used at this property?

_____

Where is the tap located that supplies most of your drinking water?

_____

Could you obtain all of your drinking water from this one tap?

_____ YES _____ NO

Will you allow the installation of an activated carbon filter at your property to provide a temporary supply of drinking water?

_____ YES _____ NO

Please provide a phone number to be contacted to arrange for installation of the temporary supply at your property:

_____

_____ _____
PROPERTY OWNER SIGNATURE DATE

March 2, 1989

Mrs. Peggy Dorsey
Elkhart County Health Department
315 South Second Street
Elkhart, IN 46516

Dear Peggy:

Per your request of February 27, 1989, I have enclosed a listing of the 46 locations in Elkhart that have been connected to the city water supply as part of the alternate water supply project. Please note that the list includes an additional two locations on West Lusher Avenue which have not as yet been provided with city water. It is planned that these two locations will be connected to city water as soon as the necessary arrangements can be made.

Please do not hesitate to contact me if you have any further questions.

Sincerely,

EIS ENVIRONMENTAL ENGINEERS, INC.

J. C. Sporleder
Geologist

JCS/mem

Encl.

PROPERTY ADDRESS	LANDLORD/ TENANT	
1900 BORNEMAN	LIVINGSTON / SCHUSTER SHEET METAL	
1910 BORNEMAN	RICHARDSON	
1915 BORNEMAN	GUTHRIE / JO ANN'S BAR	
1925 BORNEMAN	HOLDEMAN	← 1925 ? Borneman I have no such address
1932 BORNEMAN	SWIHART / DAVE MERKLE	
1935 BORNEMAN	DONALDSON	
1938 BORNEMAN	MULLINS	
2000 – 2016 BORNEMAN	WEBER & SMITH	
2015 BORNEMAN	SHOFFNER	
2033 BORNEMAN	HOOD / H & A AUTO	
2035 BORNEMAN	BURNSTTE	

PROPERTY ADDRESS	LANDLORD/ TENANT	
1900 LEININGER	HARPER	
1919 LEININGER	BAKER	N
1923 LEININGER	FREEL	N
1926 LEININGER	MC MEEKAN / FERRET INC.	N
1928 LEININGER	KELLER	N
1929 LEININGER	YODER	N
1931 LEININGER	YODER	N
2000 LEININGER	PAFF / HOWARDS AUTO	
2003 LEININGER	YODER	N
2009 LEININGER	KRONEWITTER	N s
2013 LEININGER	THALHEIMER	N
2017 LEININGER	LIKE-NEW SERVICES	N

2009 ? Leininger I have no such address

PROPERTY ADDRESS	LANDLORD/ TENANT
2023 LEININGER	IAVAGNILIO/ TINBERG
2027 LEININGER	DILLER
2030 LEININGER	COLLINS / MILLER

PROPERTY ADDRESS	LANDLORD/ TENANT	
1918 MARKLE	DAVIS/ BOSS MFG.	
1923 MARKLE	THUNANDER CORP.	
2004 MARKLE	STOUDER	
2006 MARKLE	STOUDER	
NEW BLDG WEST OF 2006 MARKLE	STOUDER	? New Bldg
2011 MARKLE	ALIG/ LAWS	
2811 7 1/2 MARKLE	FROST	

PROPERTY ADDRESS	LANDLORD/ TENANT
1916 FIELDHOUSE	LEER
28141 FIELDHOUSE	TRUMAN
28155 FIELDHOUSE	WHITMAN
28048 FIELDHOUSE	BELLAIRE

← 1916 Fieldhouse ?

PROPERTY ADDRESS	LANDLORD/ TENANT
2311 S. NAPPANEE	INDIAN IND. / CENTURY DISTRIB.
2316 S. NAPPANEE	BURNETTE/ O.K. CAR.
2320 S. NAPPANEE	COLLINS/ LINDA'S CAFE
2408 S. NAPPANEE	HILL/ STATE FARM
2408 S. NAPPANEE	SELLS/ S&S AUTO

PROPERTY ADDRESS	LANDLORD/ TENANT	
28135 HIVELY	REX RIFE/ CBA	

PROPERTY ADDRESS	LANDLORD/ TENANT	
2150 W. LUSHER	LUNA BLDG. CO. / CUSTOM VINYL	← Not connected to city water as of 2-27-89 J.C.S.
2200 W. LUSHER	LUNA BLDG. CO / COLOSIUM CO.	← Not connected to city water as of 2-27-89 J.C.S.

PROPERTY ADDRESS	LANDLORD/ TENANT
57550 KRIEGBAUM	DAVID SHORT
57670 KRIEGBAUM	VAUGHN

PROPERTY ADDRESS	LANDLORD/ TENANT	
28049 MISHAWAKA	ASTRO	
28103 MISHAWAKA	LOCUST GROVE MENNONITE CHURCH	N

Environmental
Health Laboratories

110 S. Hill Street
South Bend, IN 46617
(219) 233-4777
(219) 233-3272
FAX (219) 233-8207

November 17, 1992

Mr. Steve Sommer
Indiana Department of Environmental Management
5500 W. Bradbury Ave.
Indianapolis, IN 46241

Dear Steve,

This letter is in reference to our phone conversation of November 17, 1992 regarding IDEM samples RK 7566–89.

The matrix spike duplicate for sample RK 7588 had a high recovery, approximately 170%. A smaller amount of internal standard / surrogate standard mix was injected into the sample by the SIM (Standards Injection Module) as is evidenced by the peak areas of the internal and surrogate standards. The peak areas of the spiked compounds have very similar amounts in the matrix spike, which calculates with acceptable recoveries, and the matrix spike duplicate but quantitate differently due to the smaller amount of internal standard in the matrix spike duplicate.

A high recovery (163%) of 1,1-Dichloroethylene was observed in the matrix spike of RK 7587. However, 1,1-Dichloroethylene was recovered within acceptance limits (116%) in the matrix spike duplicate of RK 7587 and in the matrix spike of RK 7588 (119%). None of the samples in the data packet contain 1,1-Dichloroethylene and the ability to detect this compound at the CRQL is not effected.

Please feel free to contact me if you have any questions or comments regarding this matter.

Sincerely,

Paul Bowers
Quality Assurance Manager
Environmental Health Laboratories

039

Environmental Health Laboratories

[illegible] Street
South Bend, IN 46617
(219) 233-4777
(219) 233-8272
FAX (219) 233-8207

LABORATORY REPORT

Report# 42757-75

Client: IDEM
Attn: Manuella Johnson
5500 W. Bradbury
Indianapolis, IN 46241

Priority: 30 day written

Status: Final

Project : RK 7566-89

Samples Submitted: Nineteen drinking water and two matrix spike / matrix spike duplicate samples

Collected: 10-07-92 By: Client Received: 10-08-92

REPORT SUMMARY

Nineteen drinking water and two matrix spike / matrix spike duplicate samples were submitted for analysis of Task 5F, method 524.2.

The following is a summary of the results. Compounds that are not part of the task list or the routine instrument calibration file are considered tentatively identified and the results are presented as semi-quantitative only. These compounds are noted by an asterisk (*) .

Task 5F (Method 524.2)

RK 7566	1,4-Dichlorobenzene	1.8	µg/L
RK 7567	Toluene	0.3	µg/L
	Carbon disulfide *	4.2	µg/L
RK 7570	Toluene	0.2	µg/L
	1,1,1-Trichloroethane	0.1	µg/L
RK 7571	Chloroform	0.4	µg/L
RK 7575	Ethylbenzene	0.1	µg/L
	1,1,1-Trichloroethane	0.3	µg/L
	Xylenes (Total)	0.5	µg/L
	Tertiary Butyl Alcohol (TBA) *	3.1	µg/L
RK 7577	2-Butanone (MEK) *	2.8	µg/L

Continued on the following page.

C31

Client: IDEM

Report#: 42757-75

REPORT SUMMARY - continued

RK 7580	1,4-Dichlorobenzene	1.1	µg/L
	Tetrachloroethylene	0.2	µg/L
	2-Butanone (MEK) *	42	µg/L
RK 7584	Benzene	0.1	µg/L
RK 7586	Methylene chloride	4.0	µg/L
	1,1,1-Trichloroethane	0.4	µg/L

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call us at (219) 233-4777.

APPROVED BY: Paul Bowen DATE: 11-30-92

Quality Assurance Manager

APPROVED BY: John E. Jones III DATE: 11/2/92

Laboratory Manager

Environmental Health Laboratories

110 S. Hill Street
South Bend, IN 46617
(219) 233-4777
(219) 233-3272
FAX (219) 233-8207

INVOICE

Client: IDEM Purchasing Department
ATTN: Carla Hatton
105 S. Meridian St.
Indianapolis, IN 46206

Invoice No.: 42757-75
Invoice Date: 10-30-92
P.O. #: 91-608135
Acct #: 613-270.370
Acct. Name: Lab Contracts

ID #	DATE REC'VD	T.A.T.	MTRX.	TASK 5F			TOTAL
RK 7566	10-08-92	30	DW	$155.00			$155.00
RK 7567	10-08-92	30	DW	$155.00			$155.00
RK 7568	10-08-92	30	DW	$155.00			$155.00
RK 7569	10-08-92	30	DW	$155.00			$155.00
RK 7570	10-08-92	30	DW	$155.00			$155.00
RK 7571	10-08-92	30	DW	$155.00			$155.00
RK 7572	10-08-92	30	DW	$155.00			$155.00
RK 7573	10-08-92	30	DW	$155.00			$155.00
RK 7574	10-08-92	30	DW	$155.00			$155.00
RK 7575	10-08-92	30	DW	$155.00			$155.00
RK 7577	10-08-92	30	DW	$155.00			$155.00
RK 7578	10-08-92	30	DW	$155.00			$155.00
RK 7580	10-08-92	30	DW	$155.00			$155.00
RK 7582	10-08-92	30	DW	$155.00			$155.00
RK 7584	10-08-92	30	DW	$155.00			$155.00
RK 7585	10-08-92	30	DW	$155.00			$155.00
RK 7586	10-08-92	30	DW	$155.00			$155.00
RK 7587	10-08-92	30	DW	$155.00			$155.00
RK 7587MS	10-08-92	30	DW	$155.00			$155.00
RK 7587MSD	10-08-92	30	DW	$155.00			$155.00
RK 7588	10-08-92	30	DW	$155.00			$155.00
RK 7588MS	10-08-92	30	DW	$155.00			$155.00
RK 7588MSD	10-08-92	30	DW	$155.00			$155.00

Remit To: MAS Technology Corporation
110 S. Hill Street
South Bend, IN 46617

TOTAL: $3565.00

033

THANK YOU

LEGEND

ABOVE OR EQUAL TO M.C.L.'s

BELOW M.C.L.'s

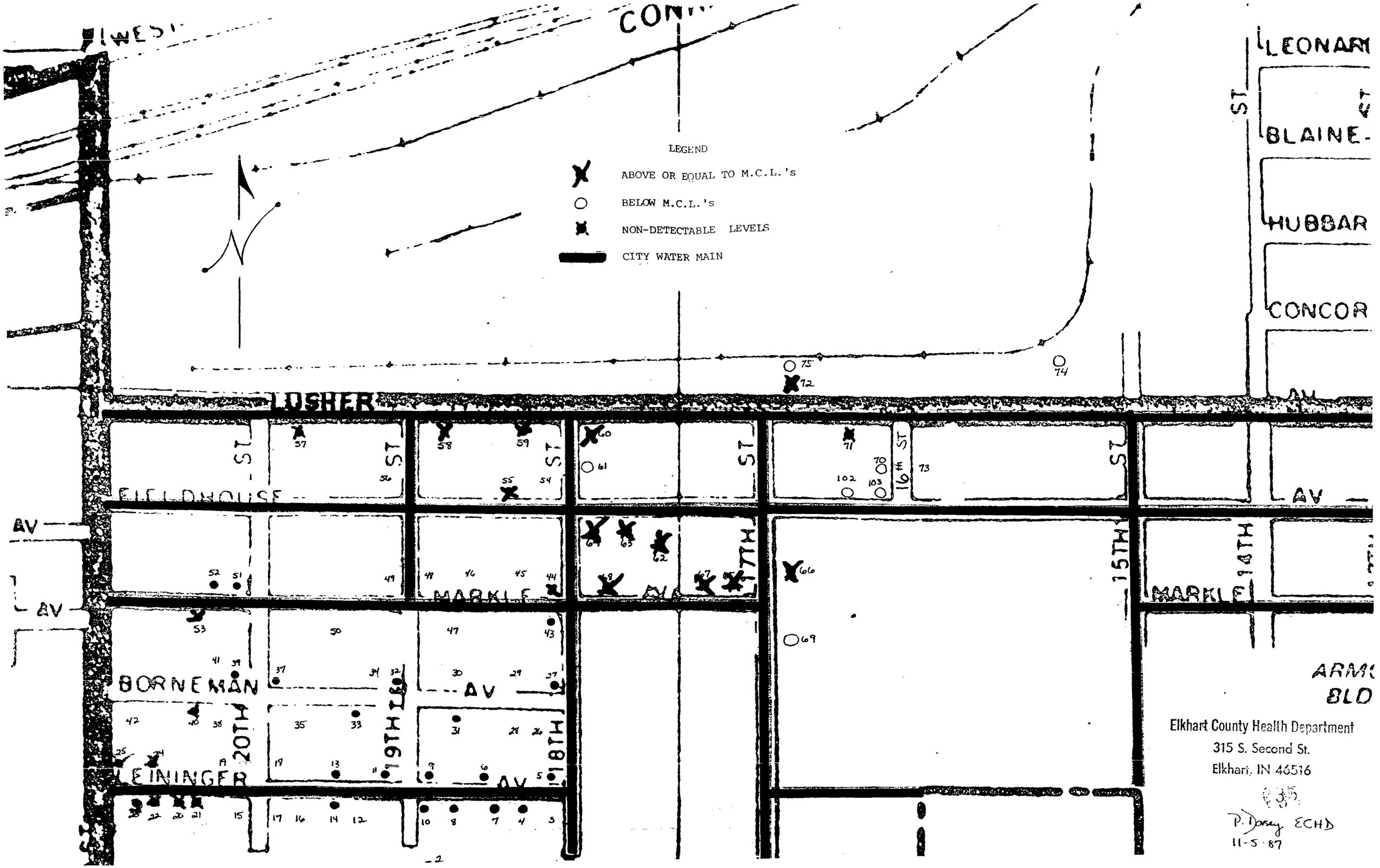
NON-DETECTABLE LEVELS

DRINKING WATER WELLS

NON-DRINKING WATER WELLS

Elkhart County Health Department
315 S. Second St.
Elkhart, IN 46516

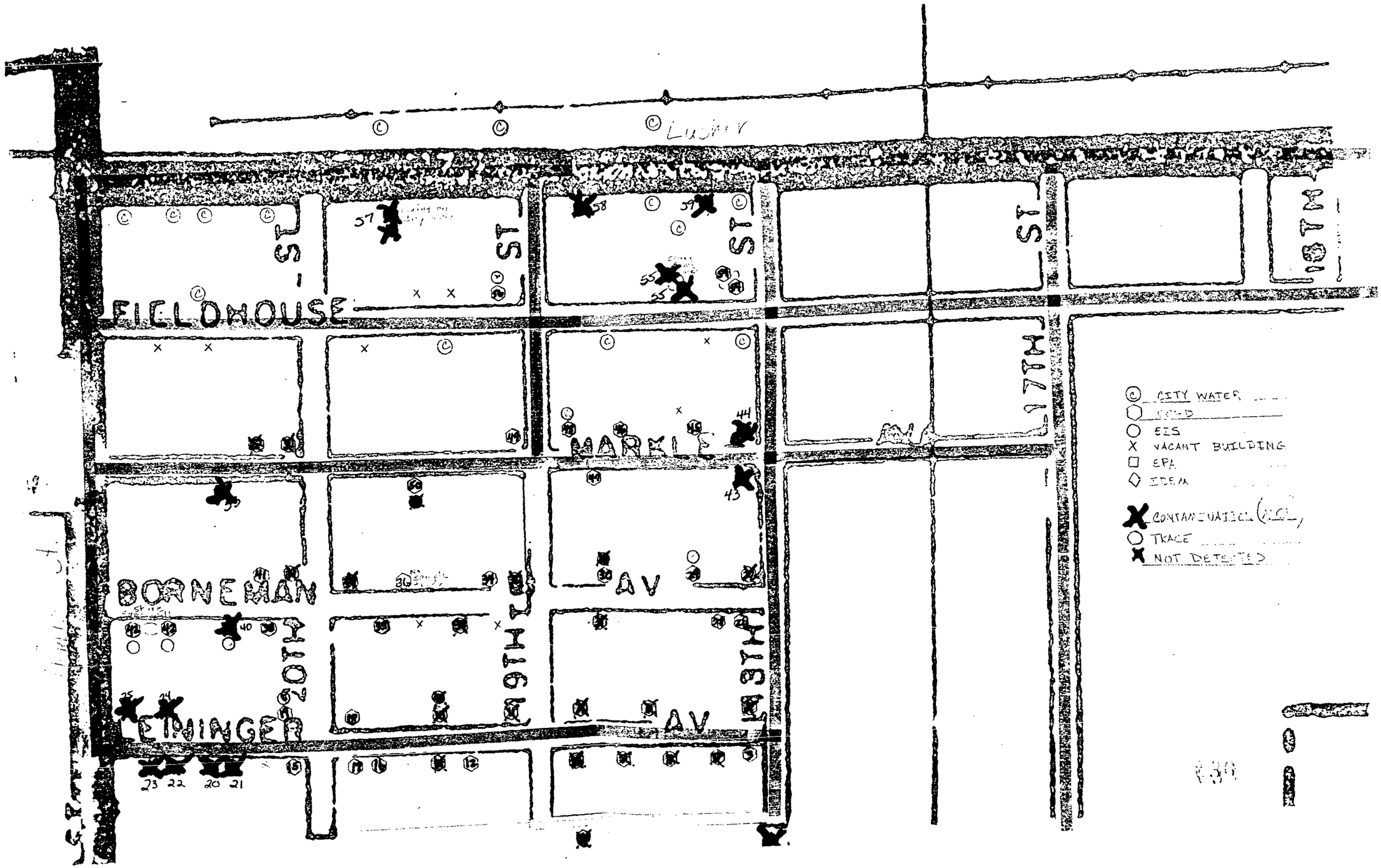
D. Dorsey ECHD 10-9-87



Elkhart County Health Department
315 S. Second St.
Elkhart, IN 46516

P. Dorsey ECHD
11-5-87

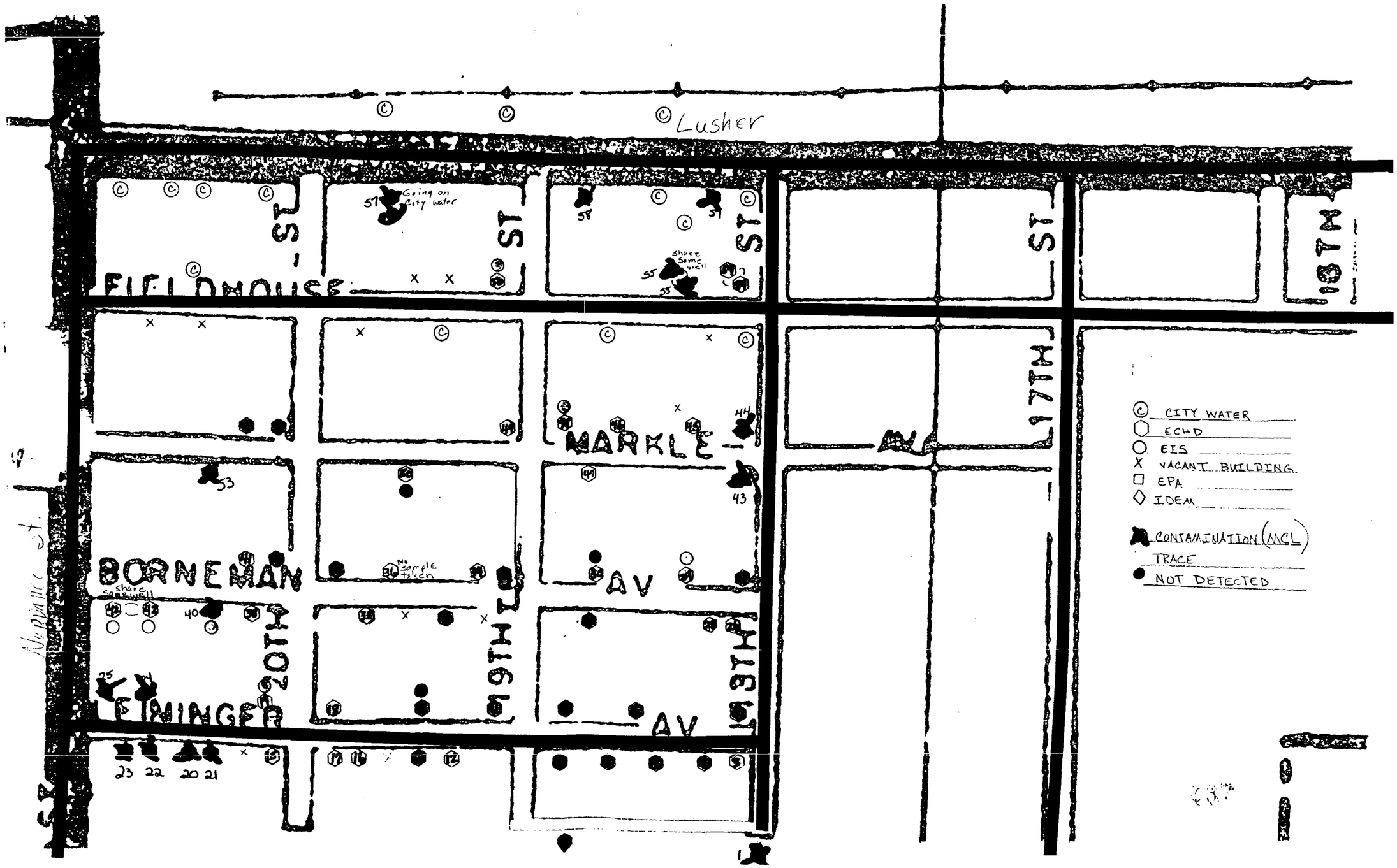
Elkhart County Health Department
315 S. Second St.
Elkhart, IN 46516

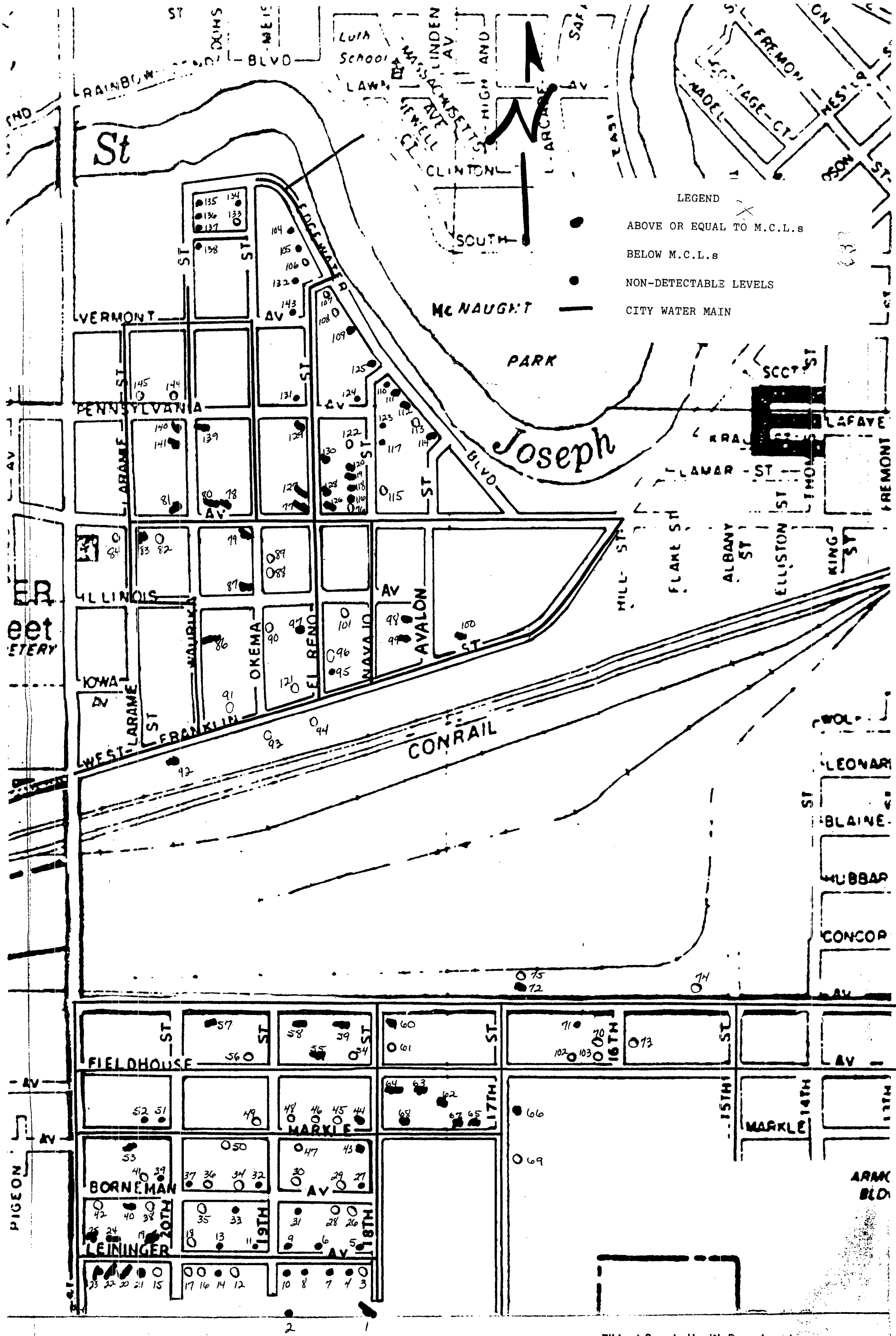


North

4

Elkhart County Health Department
315 S. Second St.
Elkhart, IN 46516

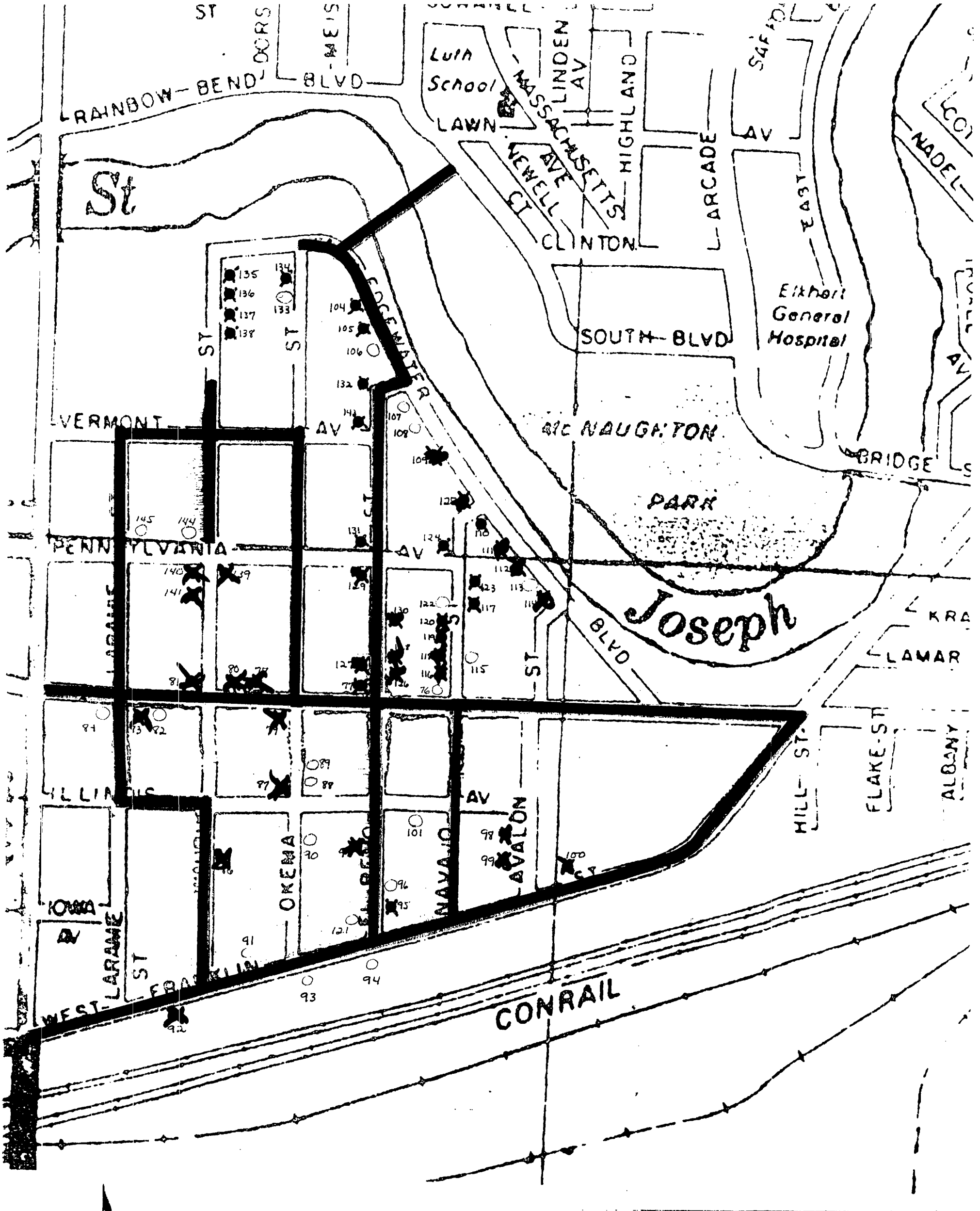




Elkhart County Health Department
315 S. Second St.
Elkhart, IN 46516

#34 Trail

P. Dorsey 12/87



LEGEND

ABOVE OR EQUAL TO M.C.L.'s

BELOW M.C.L.'s

NON-DETECTABLE LEVELS

CITY WATER MAIN

Elkhart County Health Department
315 S. Second St.
Elkhart, IN 46516

P. Dorsey ECHD
11-4-87

Originator

PHONE CONVERSATION RECORD

Conversation with:
Name Jeff Binkley
Company RE Wastaw
Address _____
_____
Phone _____

Date 11/20/97
Time 2:45 AM/PM

☑ Originator Placed Call
☐ Originator Received Call

Subject Who received remedial

Notes:

			Signed?
	Interior Access	1620 Waruka	✓
	David Roth	2700 W Indiana	✓
	Susan Frick	2108 W. Indiana	✓
	Glassmaster	1720 Markle	
PCW	Satcheer	1747 Lusher	
	Chris Hargrove	1601 Avalon	
	Ray Powers	1529 Okcma	
	Scott Wilsey	2124 W. Indiana	
	G. Blocher	2217 " "	
	Homan Lumber	1650 Lusher	
	Mac McCreary	1741 Fieldhouse	
	Lennie Bentley	1429 Elk Road	? ✓ (John B.)
	~~Nietzke~~ NEITZKE		
Called	Frances ~~Nietzke~~	2121 W. Indiana	
HBO	R. Miller	2205 17th Street	

Tried to Call Jeff Binkley

☐ File _____
__/__/__

☐ Follow-Up By: _____

☐ Copy/Route To: _____

Follow-Up-Action: _____

Originator's Initials _____

EPA

Resampled #'s

65

79

98

129

6801 Brick St.

(where is this?)

URGENT	YES	NO

Message for Mike

Time 3:32 a.m. (p.m.) Date 12-14-87

(Rocco) WHEN YOU WERE OUT

M North America Aqua

Of

Area Code 616 Telephone No. 476-2092

- [x] Telephoned
- [ ] Wants you to phone
- [ ] Will phone later
- [ ] Wants to see you
- [ ] Called to see you
- [ ] Will call back
- [ ] Returned your call

Message: (14 Houses for H2O filters were complete 12/10.

By D.J.J

Talk w/ Ken - People will be getting H_2O - At the "removal levels" or 50% below for last event. This is ~~no~~ different than other events. When he returns from Ft. Wayne, he will sit down and determine the ~~exact~~ people who are affected + who may be affected. These people will then qualify for the permanent remedial action. This will include a larger number of affected residences

Removal levels of: TCE 128 - 64
TCA 500 - 250

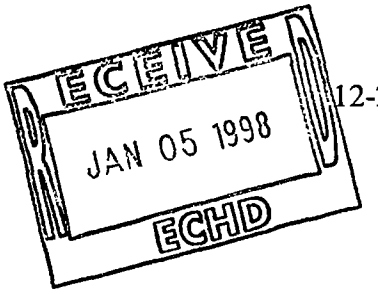
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live

Frank O'Bannon
Governor

John M. Hamilton
Commissioner

100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015
Telephone 317-232-8603
Environmental Helpline 1-800-451-6027



12-23-97

#43

FILE w/ FRANKLIN ST CONT.

Mr. Bob Battjes
2016 W. Franklin
Elkhart, IN 46516

Dear Mr. Battjes:

We have received the results of analysis for well water samples collected at the stables on 10-23-97 by staff from the Ground Water Section. The test were performed by our agency's contract laboratories and include data for over 100 chemicals. The analysis of your well water indicates no chemicals were reported detectable at level above a health protection standard for drinking water.

However, analysis indicated the following significant chemical constituents reported for the samples.

CHEMICAL	CONCENTRATION [1]	HEALTH PROTECTION LEVEL [2]
1,1-Dichloroethane	0.2 ug/L	None
1,1-Dichloroethylene	0.3 ug/L	7.0 ug/L
Tetrachloroethylene	0.9 ug/L	5.0 ug/L
1,1,1-Trichloroethane	24 ug/L	200 ug/L
Trichloroethylene	0.7 ug/L	5.0 ug/L
Trichlorofluoromethane	63 ug/L	None

Based upon this analysis and the U.S.E.P.A. Health Advisories there is no evidence that your well water is unfit for normal purposes such as drinking or cooking.

---

[1] Reported in micrograms per liter (ug/l), parts per billion (ppb) or in milligrams per liter (mg/l), parts per million.

[2] Health Protection Level based on U.S. EPA Health Advisories for lifetime consumption or Maximum Contaminant Level for public Water supplies.

Lusher Avenue
Elkhart, IN, Elkhart Countuy
Site #0000028

		1,4-DCE	Toluene	Carbon Disulfide	1,1,1 TCA	Chloroform	Ethyl benzene	Xylene Total	t-Butyl Alcohol	MEK	PCE	Benzene	Methylene Chloride
RK7588	Learch Res. Well												
RK7587	Herbert Res. Well												
RK7586	Carmichael Res. Well				0.4								4.0
RK7585	Mast Res. Well												
RK7584	Dup of RK7570											0.1	
RK7582	Glant Res. Well									42	0.2		
RK7580	Jehovah's Witness Center								42				
RK7578	Kaser Res. Well									2.8			
RK7577	Roskos Res. Well								2.8				
RK7575	Trip Blank				0.3		0.5	0.1					
RK7574	Tidd Res. Well												
RK7573	Bouder Res. Wel												
RK7572	Overgaard Res. Well												
RK7571	Malett Res. Well					0.4							
RK7570	Yoder Res. Well		0.2		0.1								
RK7569	Grancock Res. Well												
RK7568	Sperauw Res. Well												
RK7567	Bassett Res. Well		0.3	4.2									
RK7566	Horne Res. Well	1.8											
MCL		75	1,000		200		10,000					5	

Technical Support Branch
Cover Memo

To: Manuela Johnson, Chief
Chemistry Section

Date:
Thru: Max Michael

From: ART GARCEAU / KEN McDANIEL

Subject: Site Name LUSHER AVE
City, County ELKHART, ELKHART
Site Number 19000028
Grant Activity Code 3-139-000

Tech Support Staff Assigned _____

Turn-around: ___ 7 days ___ 14 days X 30 days ___ 45 days

	Prelim/Verbal	QA/QC	Interpret
Sample Results		X	X
Work Plan - Removal			
Draft Statement of Work - RI/FS			
Work Plan - RI/FS			
Final Report - RI/FS			
Draft Statement of Work - RD/RA			
Work Plan - RD/RA			
Final Report - RD/RA			
Work Plan - Other _____			
PRP Monthly/Annual Report			
Applicable Standards			
Contaminant Identities			
Other _____			

Please generate the following:

Map(s) of _____

X Table(s) of RESULTS

Graph(s) of _____

Project Manager Comments:

ATTACHED ARE SAMPLE FIELD SHEETS, SITE INFOMATION SHEETS CHAIN OF CUSTODY FORMS AND CONTRACT LAB SHEET FOR THE LATEST (10/7/92) SAMPLING FOR THE LUSHER AVE SITE. (#RK7566-RK7589), LAB REPORT SHOULD BE SENT DIRECTLY TO YOU. ACG

(Check here if "COMMENTS" continues on back of page _____)

aqualab inc.

850 West Bartlett Road, Bartlett, Illinois 60103 312/289-3100

Ms. Eileen Helmer
ROY F. WESTON
River Center
111 N. Canal St. Suite 855
Chicago IL 60606

11-12-87

Sample No.: 54114

Sample Description: SO1
Project: Lusher Street; 88WTO1

Date Taken: 11-03-87 1115

Date Received: 11-05-87 1300

VOLATILE COMPOUNDS

Acrolein	<10.	ug/L
Acrylonitrile	<10.	ug/L
Benzene	<1.0	ug/L
Bromodichloromethane	<1.0	ug/L
Bromoform	<1.0	ug/L
Bromomethane	<10.	ug/L
Carbon tetrachloride	<1.0	ug/L
Chlorobenzene	<1.0	ug/L
Chloroethane	<10.	ug/L
2-Chloroethylvinyl ether	<1.0	ug/L
Chloroform	<1.0	ug/L
Chloromethane	<10.	ug/L
Dibromochloromethane	<1.0	ug/L
1,2-Dichlorobenzene	<1.0	ug/L
1,3-Dichlorobenzene	<1.0	ug/L
1,4-Dichlorobenzene	<1.0	ug/L
1,1-Dichloroethane	<1.0	ug/L
1,2-Dichloroethane	<1.0	ug/L
1,1-Dichloroethene	<1.0	ug/L
cis-1,2-Dichloroethene	7.2	ug/L
trans-1,2-Dichloroethene	<1.0	ug/L
1,2-Dichloropropane	<1.0	ug/L
cis-1,3-Dichloropropene	<1.0	ug/L
trans-1,3-Dichloropropene	<1.0	ug/L
Ethyl benzene	<1.0	ug/L
Methylene chloride	<5.0	ug/L
1,1,2,2-Tetrachloroethane	<1.0	ug/L
Tetrachloroethene	<1.0	ug/L
Toluene	<1.0	ug/L
1,1,1-Trichloroethane	3.2	ug/L

William H. Mottashed
William H. Mottashed, Manager
Bartlett Division

APPENDIX 2

aqualab inc.

850 West Bartlett Road, Bartlett, Illinois 60103 312/289-3100

Ms. Eileen Helmer
ROY F. WESTON
River Center
111 N. Canal St. Suite 855
Chicago IL 60606

11-12-87

Sample No.: 54114

Sample Description: SO1
Project: Lusher Street; 88WTO1

Date Taken: 11-03-87 1115

Date Received: 11-05-87 1300

VOLATILE COMPOUNDS

1,1,2-Trichloroethane	<1.0	ug/L
Trichloroethene	716.	ug/L
Trichlorofluoromethane	<1.0	ug/L
Vinyl chloride	<10.	ug/L
Xylenes, Total	<1.0	ug/L

William H. Mottashed, Manager
Bartlett Division

aqualab inc.

850 West Bartlett Road, Bartlett, Illinois 60103 312/289-3100

Ms. Eileen Helmer
ROY F. WESTON
River Center
111 N. Canal St. Suite 855
Chicago IL 60606

11-12-87

Sample No.: 54115

Sample Description: SO2
Project: Lusher Street; 88WTO1

Date Taken: 11-03-87 1130

Date Received: 11-05-87 1300

VOLATILE COMPOUNDS

Acrolein	<10.	ug/L
Acrylonitrile	<10.	ug/L
Benzene	<1.0	ug/L
Bromodichloromethane	<1.0	ug/L
Bromoform	<1.0	ug/L
Bromomethane	<10.	ug/L
Carbon tetrachloride	<1.0	ug/L
Chlorobenzene	<1.0	ug/L
Chloroethane	<10.	ug/L
2-Chloroethylvinyl ether	<1.0	ug/L
Chloroform	<1.0	ug/L
Chloromethane	<10.	ug/L
Dibromochloromethane	<1.0	ug/L
1,2-Dichlorobenzene	<1.0	ug/L
1,3-Dichlorobenzene	<1.0	ug/L
1,4-Dichlorobenzene	<1.0	ug/L
1,1-Dichloroethane	<1.0	ug/L
1,2-Dichloroethane	<1.0	ug/L
1,1-Dichloroethene	<1.0	ug/L
cis-1,2-Dichloroethene	7.1	ug/L
trans-1,2-Dichloroethene	<1.0	ug/L
1,2-Dichloropropane	<1.0	ug/L
cis-1,3-Dichloropropene	<1.0	ug/L
trans-1,3-Dichloropropene	<1.0	ug/L
Ethyl benzene	<1.0	ug/L
Methylene chloride	<5.0	ug/L
1,1,2,2-Tetrachloroethane	<1.0	ug/L
Tetrachloroethene	<1.0	ug/L
Toluene	<1.0	ug/L
1,1,1-Trichloroethane	3.2	ug/L

William H. Mottashed

William H. Mottashed, Manager
Bartlett Division

aqualab inc.

850 West Bartlett Road, Bartlett, Illinois 60103 312/289-3100

Ms. Eileen Helmer
ROY F. WESTON
River Center
111 N. Canal St. Suite 855
Chicago IL 60606

11-12-87

Sample No.: 54115

Sample Description: SO2
Project: Lusher Street; 88WT01

Date Taken: 11-03-87 1130

Date Received: 11-05-87 1300

VOLATILE COMPOUNDS		
1,1,2-Trichloroethane	<1.0	ug/L
Trichloroethene	804.	ug/L
Trichlorofluoromethane	<1.0	ug/L
Vinyl chloride	<10.	ug/L
Xylenes, Total	<1.0	ug/L

William H. Mottashed, Manager
Bartlett Division

aqualab inc.

850 West Bartlett Road, Bartlett, Illinois 60103 312/289-3100

Ms. Eileen Helmer
ROY F. WESTON
River Center
111 N. Canal St. Suite 855
Chicago IL 60606

11-12-87

Sample No.: 54116

Sample Description: SO3
Project: Lusher Street; 88WTO1

Date Taken: 11-03-87 1145

Date Received: 11-05-87 1300

VOLATILE COMPOUNDS

Acrolein	<10.	ug/L
Acrylonitrile	<10.	ug/L
Benzene	<1.0	ug/L
Bromodichloromethane	<1.0	ug/L
Bromoform	<1.0	ug/L
Bromomethane	<10.	ug/L
Carbon tetrachloride	<1.0	ug/L
Chlorobenzene	<1.0	ug/L
Chloroethane	<10.	ug/L
2-Chloroethylvinyl ether	<1.0	ug/L
Chloroform	<1.0	ug/L
Chloromethane	<10.	ug/L
Dibromochloromethane	<1.0	ug/L
1,2-Dichlorobenzene	<1.0	ug/L
1,3-Dichlorobenzene	<1.0	ug/L
1,4-Dichlorobenzene	<1.0	ug/L
1,1-Dichloroethane	2.1	ug/L
1,2-Dichloroethane	<1.0	ug/L
1,1-Dichloroethene	66.3	ug/L
cis-1,2-Dichloroethene	<1.0	ug/L
trans-1,2-Dichloroethene	<1.0	ug/L
1,2-Dichloropropane	<1.0	ug/L
cis-1,3-Dichloropropene	<1.0	ug/L
trans-1,3-Dichloropropene	<1.0	ug/L
Ethyl benzene	2.1	ug/L
Methylene chloride	<5.0	ug/L
1,1,2,2-Tetrachloroethane	<1.0	ug/L
Tetrachloroethene	<1.0	ug/L
Toluene	<1.0	ug/L
1,1,1-Trichloroethane	1590.	ug/L

William H. Mottashed, Manager
Bartlett Division

aqualab inc.

850 West Bartlett Road, Bartlett, Illinois 60103 312/289-3100

Ms. Eileen Helmer
ROY F. WESTON
River Center
111 N. Canal St. Suite 855
Chicago IL 60606

11-12-87

Sample No.: 54116

Sample Description: SO3
Project: Lusher Street; 88WTO1

Date Taken: 11-03-87 1145

Date Received: 11-05-87 1300

VOLATILE COMPOUNDS		
1,1,2-Trichloroethane	3.6	ug/L
Trichloroethene	38.5	ug/L
Trichlorofluoromethane	<1.0	ug/L
Vinyl chloride	<10.	ug/L
Xylenes, Total	15.5	ug/L

William H. Mottashed, Manager
Bartlett Division

059

aqualab inc.

850 West Bartlett Road, Bartlett, Illinois 60103 312/289-3100

Ms. Eileen Helmer
ROY F. WESTON
River Center
111 N. Canal St. Suite 855
Chicago IL 60606

11-12-87

Sample No.: 54117

Sample Description: SO4
Project: Lusher Street; 88WTO1

Date Taken: 11-03-87 1215

Date Received: 11-05-87 1300

VOLATILE COMPOUNDS

Acrolein	<10.	ug/L
Acrylonitrile	<10.	ug/L
Benzene	<1.0	ug/L
Bromodichloromethane	<1.0	ug/L
Bromoform	<1.0	ug/L
Bromomethane	<10.	ug/L
Carbon tetrachloride	<1.0	ug/L
Chlorobenzene	<1.0	ug/L
Chloroethane	<10.	ug/L
2-Chloroethylvinyl ether	<1.0	ug/L
Chloroform	<1.0	ug/L
Chloromethane	<10.	ug/L
Dibromochloromethane	<1.0	ug/L
1,2-Dichlorobenzene	<1.0	ug/L
1,3-Dichlorobenzene	<1.0	ug/L
1,4-Dichlorobenzene	<1.0	ug/L
1,1-Dichloroethane	33.1	ug/L
1,2-Dichloroethane	<1.0	ug/L
1,1-Dichloroethene	16.0	ug/L
cis-1,2-Dichloroethene	3.2	ug/L
trans-1,2-Dichloroethene	<1.0	ug/L
1,2-Dichloropropane	<1.0	ug/L
cis-1,3-Dichloropropene	<1.0	ug/L
trans-1,3-Dichloropropene	<1.0	ug/L
Ethyl benzene	<1.0	ug/L
Methylene chloride	<5.0	ug/L
1,1,2,2-Tetrachloroethane	<1.0	ug/L
Tetrachloroethene	<1.0	ug/L
Toluene	<1.0	ug/L
1,1,1-Trichloroethane	49.0	ug/L

William H. Mottashed

William H. Mottashed, Manager
Bartlett Division

(5)

aqualab inc.

850 West Bartlett Road, Bartlett, Illinois 60103 312/289-3100

Ms. Eileen Helmer
ROY F. WESTON
River Center
111 N. Canal St. Suite 855
Chicago IL 60606

11-12-87

Sample No.: 54117

Sample Description: SO4
Project: Lusher Street; 88WTO1

Date Taken: 11-03-87 1215

Date Received: 11-05-87 1300

VOLATILE COMPOUNDS		
1,1,2-Trichloroethane	<1.0	ug/L
Trichloroethene	106.	ug/L
Trichlorofluoromethane	<1.0	ug/L
Vinyl chloride	<10.	ug/L
Xylenes, Total	<1.0	ug/L

William H. Mottashed, Manager
Bartlett Division

(4)

aqualab inc.

850 West Bartlett Road, Bartlett, Illinois 60103 312/289-3100

Ms. Eileen Helmer
ROY F. WESTON
River Center
111 N. Canal St. Suite 855
Chicago IL 60606

11-12-87

Sample No.: 54118

Sample Description: SO5
Project: Lusher Street; 88WTO1

Date Taken: 11-03-87 1235

Date Received: 11-05-87 1300

VOLATILE COMPOUNDS

Acrolein	<10.	ug/L
Acrylonitrile	<10.	ug/L
Benzene	<1.0	ug/L
Bromodichloromethane	<1.0	ug/L
Bromoform	<1.0	ug/L
Bromomethane	<10.	ug/L
Carbon tetrachloride	<1.0	ug/L
Chlorobenzene	<1.0	ug/L
Chloroethane	<10.	ug/L
2-Chloroethylvinyl ether	<1.0	ug/L
Chloroform	<1.0	ug/L
Chloromethane	<10.	ug/L
Dibromochloromethane	<1.0	ug/L
1,2-Dichlorobenzene	<1.0	ug/L
1,3-Dichlorobenzene	<1.0	ug/L
1,4-Dichlorobenzene	<1.0	ug/L
1,1-Dichloroethane	2.6	ug/L
1,2-Dichloroethane	<1.0	ug/L
1,1-Dichloroethene	26.4	ug/L
cis-1,2-Dichloroethene	<1.0	ug/L
trans-1,2-Dichloroethene	<1.0	ug/L
1,2-Dichloropropane	<1.0	ug/L
cis-1,3-Dichloropropene	<1.0	ug/L
trans-1,3-Dichloropropene	<1.0	ug/L
Ethyl benzene	5.2	ug/L
Methylene chloride	<5.0	ug/L
1,1,2,2-Tetrachloroethane	<1.0	ug/L
Tetrachloroethene	<1.0	ug/L
Toluene	1.3	ug/L
1,1,1-Trichloroethane	140.	ug/L

William H. Mottashed

William H. Mottashed, Manager
Bartlett Division

aqualab inc.

850 West Bartlett Road, Bartlett, Illinois 60103 312/289-3100

Ms. Eileen Helmer
ROY F. WESTON
River Center
111 N. Canal St. Suite 855
Chicago IL 60606

11-12-87

Sample No.: 54118

Sample Description: S05
Project: Lusher Street; 88WT01

Date Taken: 11-03-87 1235

Date Received: 11-05-87 1300

VOLATILE COMPOUNDS		
1,1,2-Trichloroethane	<1.0	ug/L
Trichloroethene	19.1	ug/L
Trichlorofluoromethane	<1.0	ug/L
Vinyl chloride	<10.	ug/L
Xylenes, Total	45.2	ug/L

William H. Mottashed, Manager
Bartlett Division

aqualab inc.

850 West Bartlett Road, Bartlett, Illinois 60103 312/289-3100

Ms. Eileen Helmer
ROY F. WESTON
River Center
111 N. Canal St. Suite 855
Chicago IL 60606

11-12-87

Sample No.: 54119

Sample Description: SO6
Project: Lusher Street; 88WTO1

Date Taken: 11-03-87

Date Received: 11-05-87 1300

VOLATILE COMPOUNDS

Acrolein	<10.	ug/L
Acrylonitrile	<10.	ug/L
Benzene	<1.0	ug/L
Bromodichloromethane	<1.0	ug/L
Bromoform	<1.0	ug/L
Bromomethane	<10.	ug/L
Carbon tetrachloride	<1.0	ug/L
Chlorobenzene	<1.0	ug/L
Chloroethane	<10.	ug/L
2-Chloroethylvinyl ether	<1.0	ug/L
Chloroform	1.2	ug/L
Chloromethane	<10.	ug/L
Dibromochloromethane	<1.0	ug/L
1,2-Dichlorobenzene	<1.0	ug/L
1,3-Dichlorobenzene	<1.0	ug/L
1,4-Dichlorobenzene	<1.0	ug/L
1,1-Dichloroethane	<1.0	ug/L
1,2-Dichloroethane	<1.0	ug/L
1,1-Dichloroethene	<1.0	ug/L
cis-1,2-Dichloroethene	<1.0	ug/L
trans-1,2-Dichloroethene	<1.0	ug/L
1,2-Dichloropropane	<1.0	ug/L
cis-1,3-Dichloropropene	<1.0	ug/L
trans-1,3-Dichloropropene	<1.0	ug/L
Ethyl benzene	<1.0	ug/L
Methylene chloride	<5.0	ug/L
1,1,2,2-Tetrachloroethane	<1.0	ug/L
Tetrachloroethene	<1.0	ug/L
Toluene	<1.0	ug/L
1,1,1-Trichloroethane	<1.0	ug/L

William H. Mottashed

William H. Mottashed, Manager
Bartlett Division

aqualab inc.

850 West Bartlett Road, Bartlett, Illinois 60103 312/289-3100

Ms. Eileen Helmer
ROY F. WESTON
River Center
111 N. Canal St. Suite 855
Chicago IL 60606

11-12-87

Sample No.: 54119

Sample Description: SO6
Project: Lusher Street; 88WT01

Date Taken: 11-03-87

Date Received: 11-05-87 1300

VOLATILE COMPOUNDS		
1,1,2-Trichloroethane	<1.0	ug/L
Trichloroethene	<1.0	ug/L
Trichlorofluoromethane	<1.0	ug/L
Vinyl chloride	<10.	ug/L
Xylenes, Total	<1.0	ug/L

William H. Mottashed, Manager
Bartlett Division

APPENDIX 1

Elkhart County Health Department

315 SO. SECOND STREET
ELKHART, INDIANA 46516
PHONE: (219) 523-2283

Occupant:

The Elkhart County Health Department (ECHD) Groundwater Protection Program is currently involved in a systematic monitoring in and around known areas of groundwater contamination in Elkhart County. Your drinking water was recently sampled as part of this program. The results of this test indicate that your well has been affected.

The chemical(s) found in your water are as follows:

NAME	AMOUNT (in ppb)	MCL

ppb = parts per billion
MCL = Maximum Contamination Level by the USEPA for municipal water supplies

Since the concentration of the volatile organic compound(s) detected in your drinking water is ABOVE the USEPA MCL , it is recommended that you DO NOT use the water for drinking or cooking.

Test results from other nearby water wells have indicated the presence of organic chemical contaminants. ECHD, in cooperation with the Indiana Department of Environmental Management and the U.S. Environmental Protection Agency, will continue testing in this area to define the exact extent of the contamination.

If you have any questions please contact our office at 523-2282.

Sincerely,

Michael Furfaro
Groudwater Protection Specialist

Elkhart County Health Department

315 SO. SECOND STREET
ELKHART, INDIANA 46516
PHONE: (219) 523-2283

Occupant:

The Elkhart County Health Department (ECHD) Groundwater Protection Program has recently started a systematic monitoring program in and around the known areas of groundwater contamination in Elkhart County. Your drinking water was recently sampled as part of this program. The result of this test indicate that your well has NOT been affected.

ECHD will be periodically testing in your area to monitor any movement of the contaminants present in the groundwater. As the rate of groundwater movement is very slow, we will not be retesting your area again for 10-12 months. If you detect any change in the taste or smell of your water or have any questions about the monitoring program, please call me at 523-2282.

Sincerely,

Michael Furfaro
Groundwater Protection Specialist

PSD

From: Jeff Bentley
Weston, Inc.

TABLE 1

LUSHER STREET GROUND WATER INVESTIGATION

ELKHART, INDIANA

MP #	Resident	Contaminant	Concentration	Accepted Filter	Installed
4	Kathy Carmichael Interior Access 1620 Waurika #295-3860	1,1,1-TCA	263	Yes	11-23-87
6	David Roth 2200 W. Indiana #295-8311	1,1,1,-TCA	266	Yes	11-24-87
8	Susan Frick 2108 W. Indiana #295-1402	1,1,1-TCA	719	Yes	11-24-87
9	Ray Powers 1529 Okama #295-7843	1,1,1-TCA	330	Yes	11-27-87
3	Homen Lumber 1650 Lusher #293-6595	1,1,1-TCA TCE	3,800 608	Yes	11-24-87 (larger filter installed 12-10-87)
1	Glass Master 1720 Markle #293-4195	TCE	93	Yes	12-03-87
7	Scott Wilsey 2124 W. Indiana #294-6275	1,1,1-TCA	572	Yes	12-09-87
5	Genevieve Blocher 2217 W. Indiana	1,1,1-TCA	257	Yes	12-03-87
2	Mac McCreary 1741 Fieldhouse #294-5343	TCE	71	Yes	12-03-87
11	Linnie Bentley 1429 El Reno #293-5676 (her son)	1,1,1-TCA	358	Yes	12-04-87
	Sotebeer Construction 1747 Lusher #295-0166	1,1,1-TCA TCE	516 390	No	

TABLE 1 (Continued)

LUSHER STREET GROUND WATER INVESTIGATION

ELKHART, INDIANA

#	Resident	Contaminant	Concentration	Accepted Filter	Installed
0	Chris Hargrove 1601 Avalon #294-6134	TCE	106	Yes	12-09-87
4	Ken Speraw 1401 El Reno 293-9134	1,1,1-TCA	272	Yes	12-04-87

CITY HOOKUP:

#	Resident	Contaminant	Concentration	~~Accepted Filter~~	Installed
3	Francis Neitzke 2121 W. Indiana #293-6777	1,1,1-TCA	1,590	Yes	12-02-87
12	Ed Miller 2205 17th Street #293-1395	TCE	804	Yes	~~12-16-87~~ 12-31-87

NOTE:

Ed Miller has changed his mind several times — As of 7-5-88 he still has not been hooked up to city water -

... locations

LIST OF LOCATIONS ABOVE MCL'S - CANDIDATES FOR FILTERS FROM IDEM

Name / Address:	Sample #	Contaminants Above MCL's (ppb)			
		TCE	TCA	DCA	DCE
Clifford Morgan 2521 18th St Elkhart, IN 293-2702	1	8			
Ultra Fine 1817 Markle Elkhart, IN 295-4249	43	10			
Dial Machine 1806 Markle Elkhart, IN 294-1002	44	17			
Leers Tool & Machine 1812 Fieldhouse Elkhart, IN 294-8693	55	11			
Mac McCreary 1745 Fieldhouse Elkhart, IN 294-5343	63	53			
Shurflo 1740 Markle Elkhart, IN 294-7581	68	6			
~~G. Blocher~~ ~~2817 W. Indiana~~ ~~Elkhart, IN~~	83				10
Wilt's Corp. Office 1605 El Reno Elkhart, IN 295-5681	97	33			
Occupant 1319 Edgewater Elkhart, IN	109	5			
Occupant 1415 Navajo Elkhart, IN	119			10	19
Steve Datena 1337 Edgewater	125	15		5	11

HAS FILTER FROM EPA

C61

Elkhart, IN
875-731

Occupant 1410 El Reno Elkhart, IN	130	9	370		12
Jehovah Witness Church 1410 Waurika Elkhart, IN 293-1300	139	7		7	22
Doris Glant 1411 Waurika Elkhart, IN	141			7	11

file name: IDEMLIST
diskette: LAB DATABASE #1

#34

#39

#64

#66

#72 RESTAURANT

#80

FINAL LISTING OF THOSE OFFERED CITY WATER HOOK-UP BY THE U.S.E.P.A.

Linne Bentley 1429 El Reno Elkhart, IN 46516	originally given a point-of-use filter
Burk Residence 1420 El Reno Elkhart, IN 46516	no previous offer was made
J.E. Frick 2108 W. Indiana Ave. Elkhart, IN 46516	originally given a point-of-use filter
Homan Lumber c/o Bob Homan 1650 W. Lusher Elkhart, IN 46516	originally given a point-of-use filter
Karen Linder or Chris Hargrove 1601 Avalon Elkhart, IN 46516	originally given a point-of-use filter
David Roth 2200 W. Indiana Ave. Elkhart, IN 46516	originally given a point-of-use filter
Sotebeer Construction 1747 Lusher Elkhart, IN 46517	originally offered a point-of-use filter but it was refused
Scott Wilsey 2124 W. Indiana Ave Elkhart, IN 46516	originally given a point-of-use filter
Francis Neitzke 2121 W. Indiana Elkhart, IN 46516	immediate hook-up to city water, no temporary filter was installed
Ed Miller 2205 17th St. Elkhart, IN	Mr. Miller has not accepted city water hook-up as of 7-6-88. No temporary filter was installed.

file name: EPALIST
diskette: LAB DATABASE #1

FINAL LISTING OF THOSE OFFERED POINT OF USE FILTERS BY THE U.S.E.P.A.

Diana Barnett
1430 Waurika
Elkhart, IN 46516

Doke
1400 Navajo
Elkhart, IN 46516

Occupant
1405 Navajo
Elkhart, IN 46516

don't have this one per location

Winnifred Brown
1411 Navajo
Elkhart, IN 46516

Katheryn Bloch
1413 Navajo
Elkhart, IN 46516

Occupant
1414 Navajo
Elkhart, IN 46516

Jennie Mast
1417 Navajo
Elkhart, IN 46516

Occupant
1418 Navajo
Elkhart, IN 46516

Occupant
1419 Navajo
Elkhart, IN 46516

Doke
1403 Edgewater Blvd
Elkhart, IN 46516

Occupant
1411 Edgewater Blvd
Elkhart, IN 46516

Debra Ludlow
1415 Edgewater
Elkhart, IN 46516

Bromcock
1423 Edgewater
Elkhart, IN 46516

Frank Kalman
1427 Edgewater
Elkhart, IN 46516

Occupant
1435 Edgewater
Elkhart, IN 46516

Ken Speraw
1401 El Reno
Elkhart, IN 46516

Occupant
1426 El Reno
Elkhart, IN 46516

Michael Horne
1920 W. Indiana
Elkhart, IN 46516

Mr. Malott
1619 Avalon
Elkhart, IN 46516

Interior Access
c/o Kathy Carmichael
1620 Waurika
Elkhart, IN 46516

Ray Powers
1529 Okema
Elkhart, IN 46516

Glass Master
1720 Markle
Elkhart, IN 46517

Mac McCreary
1741 Fieldhouse
Elkhart, IN 46517

NOTE: These locations will not be offered city water hook-up. The filters are considered the permanent remedial action.

file name: EPALIST2
diskette: LAB DATABASE #1

ALSO:

83 Blocher
2217 W. Virginia
Goshen

LIST OF THOSE OFFERED CITY WATER HOOK-UP BY E.I.S. ENGINEERS

Paul Whybrew (LL)
1935 Borneman
Elkhart, IN 46517

Jess Shaffer
2015 Borneman
Elkhart, IN 46517

Gary and Janice Harpee (LL)
1900 Leininger
Elkhart, IN 46517

Mike and Carla Freel (LL)
1923 Leininger
Elkhart, IN 46517

Craig Keller
1928 Leinger
Elkhart, IN 46517

Manford Holdeman (LL)
1925 Borneman
Elkhart, IN 46517

Sophie Starzenskie (LL)
SW corner 19th and Fieldhouse
Elkhart, IN 46517

Richard Lightfoot (LL)
1918 Markle
Elkhart, IN 46517

Warren Richardson (LL)
1910 Borneman
Elkhart, IN 46517

William Swihart (LL)
1932 Borneman
Elkhart, IN 46517

Tom Iavagnilio (LL)
2023 Leininger
Elkhart, IN 46517

Curtis Hill
2408 S. Nappanee
Elkhart, IN 46517

Walter Diller
2027 Leininger
Elkhart, IN 46517

Mervin Lung Building Co., Inc. (LL)
2150 W. Lusher
Elkhart, IN 46517

David Frost
28117 Markle Ave
Elkhart, IN 46517

Locust Grove Menonite Church
28103 Mishawaka St.
Elkhart, IN 46517

Charles Cassel
28039 Fieldhouse
Elkhart, IN 46517

Inlaw Industries (LL)
2311 S. Nappanee
Elkhart, IN 46517

Rex Rife (LL)
28135 W. Hively
Elkhart, IN 46517

file name: EISLIST
diskette: LAB DATABASE #1

LIST OF DISCREPENCIES IN WATER ANALYSIS

The following is a list of those locations in the Indiana Ave. and Lusher Street investigation sites at which the EPA results showed the wells had no contamination (BDL - Below Detectable Limits) and the ECHD found measurable contaminants.

NAME / ADDRESS	ECHD SAMPLE #
Wesley Baker 1919 Leininger Elkhart, IN	12
Richard Hartman 1819 Markle Elkhart, IN	47
William Leers 1813 Lusher Elkhart, IN	59
Robert Bemiller 1645 Fieldhouse Elkhart, IN	66
Harold Gouchenour 2300 17th St. Elkhart, IN	69
ET&T Frames, Inc. 1550 Lusher Elkhart,IN	74
Occupant 1544 Avalon Elkhart, IN	100
Nelson Schlosser 1913 Illinois Elkhart, IN	101
Grant Holmes 1315 Edgewater Elkhart, IN	108

note: Other locations which were sampled by both the ECHD and the EPA had discrepencies, but in those instances contaminants were found in both samples.

file name: DIFFLIST
diskette: LAB DATABASE #1

yellow highlight -
needs a filter by DEM

pink highlight -
has EPA filter, needs to be sampled by DEM

orange highlight -
needs a DEM filter since he refused EPA hookup.

1405 Navajo - given EPA filter
1435 Navajo - given EPA filter

These locations did not get sampled by our office

Also, request #65 Ed. Miller 2205 17th St to get filter since he refused EPA hook-up to city H_2O.

Copy of this sent to DEM, Sue Weiss, for them to sample + install a point-of-use filter. (2-6-89)

SAMPLE NUMBER	TCE	TCA	DCA	DCE	T12DCE	PCE	MECL	BENZE	OTHER1	OTHER2	OTHER4	NOTES1	NOTES2
001	8	PBNQ									Above	DEM help? filter?	
002											Clean	None Detected	
003		PBNQ									Below		
004											Clean	None Detected	
005											Clean	None Detected	
006											Clean	None Detected	
007											Clean	None Detected	
008											Clean	None Detected	
009											Clean	None Detected	
010											Clean	None Detected	
011											Clean	None Detected	EIS city H_2O
012			4								Below	EIS city H_2O	
013											Clean	None Detected	EIS city H_2O
014	Trace										Below	EIS city H_2O	
015			4								Below	EIS city H_2O	
016			4								Below	EIS city H_2O	
017			3								Below	EIS city H_2O	
018			4								Below	EIS city H_2O	
019	Trace	Trace	5								Above	EIS city H_2O ✓	
020	35	48	1								Above	EIS [illegible] H_2O ✓	
021											Clean	None Detected	EIS city H_2O
022	5	32	4								Above	EIS city H_2O	
023	7	PBNQ	4								Above	EIS city H_2O	
024	15	166	2		5						Above	EIS city H_2O	
025	7-10	98-110	5	3							Above	EIS city H_2O	
026		Trace									Below		
027											Clean	None Detected	
028	4	40									Below		
029		18									Below		
030		2									Below		
031											Clean	None Detected	
032											Clean	None Detected	EIS city H_2O
033											Clean	None Detected	EIS city H_2O
034		2									Below	EIS city H_2O	
035		Trace									Below	EIS city H_2O	
036		Trace									Below	EIS city H_2O	
037											Clean	None Detected	EIS city H_2O
038	2										Below	EIS city H_2O	
039											Clean	None Detected	
040	16	95	5		2						Above	EIS city H_2O	
041		7									Below	EIS city H_2O	
042	2	94	4	4	Trace						Below	EIS city H_2O	
043	10										Above	DEM HELD?	FILTER?
044	17										Above	DEM Filter?	
045	4										Below		
046		4									Below		
047		15									Below		
048		15									Below		
049		10									Below	EIS city H_2O	
050	.2	12	3								Below	EIS city H_2O	

051						Clean	None Detected EIS city H_2O	
052						Clean	None Detected EIS city H_2O	
053			5			Above	EIS city H_2O ?	
054		4				Below		
055	11	1				Above	DEM filter ?	
056		28	3	3		Below		
057	109	2368	7	214		Above	now on city water	Wilcako
058	13	2				Above	DEM filter ?	
059	6	1				Above	DEM filter ?	
060	516	390	8	2	4	Above	POU Filter refused EPA	
061	Trace	72	1	1		Below		
062	71	24		1		Above	POU Filter EPA	
063	53	21		1		Above	DEM filter ?	
064	5	8				Above	DEM filter ?	
065	1390	34		Trace		Above	City Water offered	NOT Accepted !
066	6					Above	DEM filter ?	
067	93	34				Above	POU Filter EPA	
068	6	5				Above	DEM filter ?	
069	Trace					Below		
070	Trace					Below		
071						Clean	None Detected	
072	608	3800	435	1		Above	EPA	
073	1	146				Below		
074	Trace					Below		
075		19	3			Below	POU Filter EPA	
076	2	14		2		BElow		
077	6	130	3	12		Above	Peak at 1.47 EPA	
078	30	719	3	85	1	Above	POU Filter EPA	3 other peaks dete
079	45	827	4	129	1	Above	City Water EPA	
080	30	572	8	59	1	Above	POU Filter EPA	
081	4	266	7	17		Above	POU Filter EPA	
082		11	3	5		Below	EPA Bladen	
083		257	7	15		Above	POU Filter EPA 2017 W 2nd	
084		15	2	3		Below		
085						Clean	None Detected	We found out after
086	9	263	2	15		Above	POU Filter EPA	Peak at 1.47, 3 ot
087	4	330	2	17		Above	POU Filter EPA	Peak at 1.47
088	2	15				Below	Peaks at 1.47 and 9.15	
089	2	108				Below	Peaks detected at 1.47 and 9.15	
090	2	2				Below	Peak detected at 1.47	
091	3	33				Below	Peak detected at 1.47	
092	14	146	4	8		Above	installed their own filter	Sidetrack
093		3	2			Below		
094		3			1	Below		
095						Clean	None Detected	
096					1	Below		
097	33				1	Above	2 ppb CCl4 DEM filter?	
098	160	97	43	27	1	Above	POU Filter EPA	
099	11	74	19	14	1	Above	EPA filter	

Ray Brooks — 1529 Okema

100	11		3		1			Above	3 ppb CCl4 DEM filter?
101	2				1			Below	
102					Trace		PRSNT	Below	
103							PRSNT	Below	
104								Clean	None Detected
105								Clean	None Detected
106	1	2						Below	
107	3	4	Trace					Below	
108	1	3						Below	
109	5	8	2	2		1		Above	DEM filter?
~~110~~								Clean	None Detected
111	4	72	17	7		2	PRSNT	Above	EPA filter
112	3	63	11	10		1	PRSNT	Above	EPA filter
113	2	40	Trace	6				Below	Peak at 1.46 EPA
114	3	67	2	9				Above	Peak at 1.46 EPA
~~115~~	2	16						Below	Peak at 1.46 EPA
116	4	153	2	14		1		Above	Peak at 1.46 EPA
117	4	114	3	12		1		Above	Peak at 1.46 EPA
118	3	142	6	16		3		Above	Peak at 1.46 EPA
119	4	140	10	19		1		Above	Peak at 1.46 [redacted] DEM filter?
120	3	110	3	13		3		Above	Peak at 1.46 EPA
121	1							Below	
122	1		Trace	1				Below	EPA filter
~~123~~								Clean	None Detected EPA filter
124								Clean	None Detected
125	15	27	5	11	Trace	3		Above	DEM filter
126	4	44	17	9		2		Above	Peak at 1.46 EPA filter
127	16	358	23	37				Above	POU Filter EPA
128	6	144	18	14		3		Above	EPA filter
129	21	276		43	Trace	3		Above	EPA filter
130	10	234	13	20				Above	DEM filter?
131								Clean	None Detected
132								Clean	None Detected
133		2						Below	
134								Clean	None Detected
135								Clean	None Detected
136								Clean	None Detected
137								Clean	None Detected
138								Clean	None Detected
139	7	180	7	22	Trace	6		Above	Installed a filter - Jehovah Witness self installed
140		19	7	8		1		Above	DEM filter?
141		43	7	11		1		Above	DEM filter?
142								Clean	None Detected
143								Clean	None Detected
144		2	3	2				Below	
145		2						Below	

filters

DEM filter?
Jehovah Witness self installed

Merle Stouder	2004	Markle	Elkhart	293-0468	wash basin	F
Merle Stouder	2006	Markle	Elkhart	293-0468	outside tap - east	F
Dale Laws	2011	Markle	Elkhart	293-5028	kitchen sink	F
Jeffries Trucking/LaVanco	1800	Fieldhouse	Elkhart	294-2939	bathroom sink	F
Leers Tool & Machine Co.	1812	Fieldhouse	Elkhart	294-8633	kitchen sink	F
Cullip Tool & Die	1900	Fieldhouse	Elkhart	293-8251	bathroom sink	F
Malerko Tool & Engineering	1935	Lusher	Elkhart		bathroom sink	S
Elkhart Hinge	1839	Lusher	Elkhart	293-2841	kitchen sink	F
William Leers	1813	Lusher	Elkhart	294-4023	kitchen sink	S
Sotebeer Construction	1747	Lusher	Elkhart	295-0166	inside sink	F
Sotebeer Construction	1747	Lusher	Elkhart	295-0166	bathroom back bldg	P
Mac McCreary	1741	Fieldhouse	Elkhart	294-5343	outside tap - south	P
Mac McCreary	1745	Fieldhouse	Elkhart	294-5343	outside tap - west	P
Mac McCreary	1749	Fieldhouse	Elkhart	294-5343	outside tap - east	P
Edward Miller	2205	17th St	Elkhart	295-1395	kitchen sink	P
Robert BeMiller	1645	Fieldhouse	Elkhart		outside tap - east	P
Glass Master	1720	Markle	Elkhart	293-4195	inside tap	P
Shurflo	1740	Markle	Elkhart	294-7581	inside tap	P
Harold Gouchenour	2300	17th St	Elkhart	522-6449	kitchen sink	P
R.W.Industries	1600	B Fieldhouse	Elkhart	293-5129	bathroom sink	P
Joe Prusinski	1609	Lusher	Elkhart		outside tap - west	P
Homan Lumber	1650	Lusher	Elkhart	293-6595	kitchen-south bldg	P
Lase Corp	1555	Lusher	Elkhart	522-3181	bathroom sink	P
ET & T Frame	1550	Lusher	Elkhart	293-9511	bathroom sink	P
Homan Lumber	1650	Lusher	Elkhart	293-6595	bathroom-north bldg	P
Bowers	1900	W.Indiana	Elkhart	295-4294	kitchen sink	P
	1920	W.Indiana	Elkhart		outside tap	S
J.E.Frick	2108	W.Indiana	Elkhart		outside tap	S
F. Heitzke	2121	W.Indiana	Elkhart		outside tap - south	P
	2124	W.Indiana	Elkhart		outside tap	S
David Roth	2200	W.Indiana	Elkhart		outside tap - north	P
M.E.Krise	2215	W.Indiana	Elkhart		outside tap - west	P
G. Blocher	2217	W. Indiana	Elkhart		outside tap	S
Upper&Lower Case Unlimited	2301	W.Indiana	Elkhart	294-1173	kitchenette sink	S
Burger King	2517	Cassopolis	Elkhart	262-4838	Kitchen - hand sink	P
Interior Accessories	1620	Waurika	Elkhart	295-3860	kitchenette sink	S
Ray Powers	1529	Okema	Elkhart	295-7843	kitchen sink	S
	1526	Okema	Elkhart	295-5943	outside tap	P
	1520	Okema	Elkhart		outside tap	P
Ronald Smith	1604	Okema	Elkhart	295-2341	kitchen sink	S
Custom Laser	2120	W.Franklin	Elkhart	293-0494	bathroom sink	P
Sidetrack Restaurant	2211	W.Franklin	Elkhart	294-7117	kitchen sink	P
Mark IV Realty	2031	W. Franklin	Elkhart	295-8439	kitchenette sink	S
D M Glass Corp	2001	W. Franklin	Elkhart	294-6481	kitchenette sink	P
Williams	1626	El Reno	Elkhart	294-4036	kitchen sink	P
	1624	El Reno	Elkhart		outside tap	S
Wilt's Corporate Office	1605 & 1615	El Reno	Elkhart	295-5681	men's bathroom sink	P
Chris Hargrove	1601	Avalon	Elkhart	294-6134	outside tap	S
Malott	1613	Avalon	Elkhart	294-3760	kitchen sink	P
	1544	Avalon	Elkhart		outside tap	S

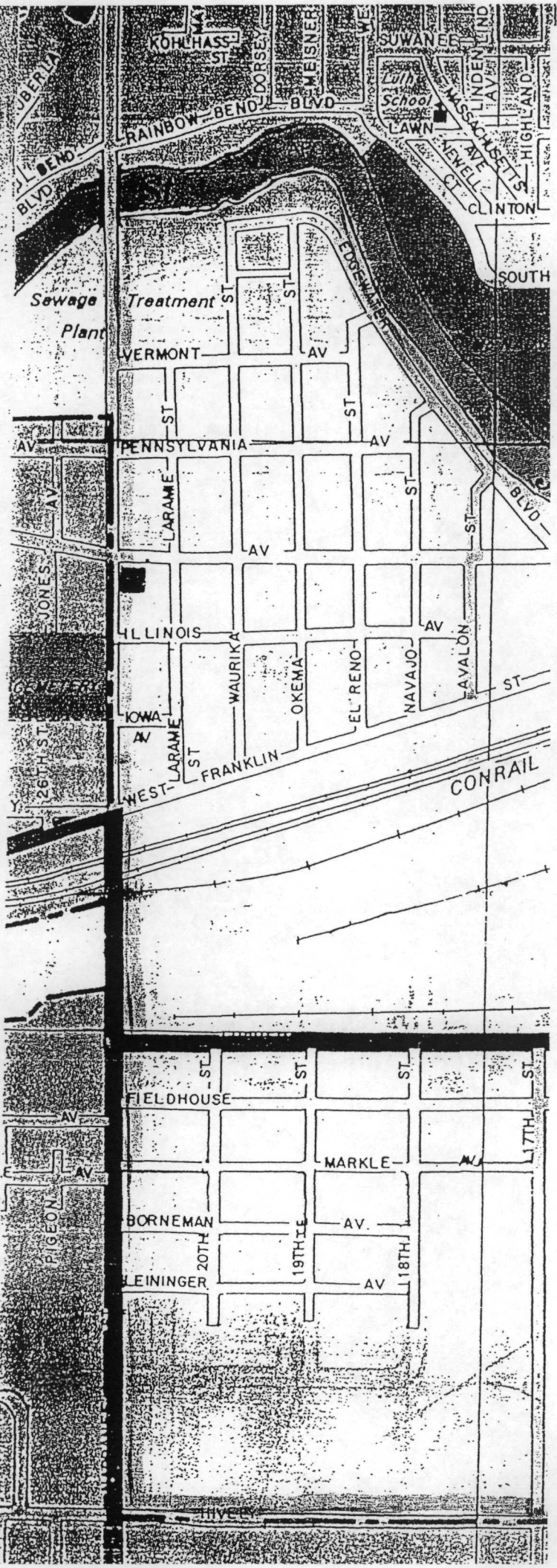
101	2				1			Below		
102					Trace		PRSNT	Below		
103							PRSNT	Below		
104								Clean	None Detected	
105								Clean	None Detected	
106	1	2						Below		
107	3	4	Trace					Below		
108	1	3						Below		
109	5	8	2	2		1		Above		
110								Clean	None Detected	
111	4	72	17	7		2	PRSNT	Above		
112	3	63	11	10		1	PRSNT	Above		
113	2	40	Trace6					Below	Peak at 1.46	
114	3	67	2	9				Above	Peak at 1.46	
115	2	16						Below	Peak at 1.46	
116	4	153	2	14		1		Above	Peak at 1.46	
117	4	114	3	12		1		Above	Peak at 1.46	
118	3	142	6	16		3		Above	Peak at 1.46	
119	4	140	10	19		1		Above	Peak at 1.46	
120	3	110	3	13		3		Above	Peak at 1.46	
121	1							Below		
122	1		Trace1					Below		
123								Clean	None Detected	
124								Clean	None Detected	
125	15	27	5	11	Trace	3		Above		
126	4	44	17	9		2		Above	Peak at 1.46	
127	16	358	23	37				Above	POU Filter	
128	6	144	18	14		3		Above		
129	21	276		43	Trace	3		Above		
130	10	234	13	20				Above		
131								Clean	None Detected	
132								Clean	None Detected	
133		2						Below		
134								Clean	None Detected	
135								Clean	None Detected	
136								Clean	None Detected	
137								Clean	None Detected	
138								Clean	None Detected	
139	7	180	7	22	Trace	6		Above		
140		19	7	8		1		Above		
141		43	7	11		1		Above		
142								Clean	None Detected	
143								Clean	None Detected	
144		2	3	2				Below		
145		2						Below		

Schlosser / Nelson #101	1913 Illinois	Elkhart	294-1430	kitchen sink	P. Dorsey	10-23-87	4
Nancy Kovachenko	1612 Fieldhouse	Elkhart	293-1854	kitchen sink	P. Dorsey	10-28-87	1
Oasis - Bob Charles	1600 A Fieldhouse	Elkhart	262-3179	bathroom sink	P. Dorsey	10-28-87	1
Doyle Wygant	1237 Edgewater	Elkhart	295-7922	kitchen sink	P. Dorsey	10-28-87	1
Richard Long	1238 Edgewater	Elkhart	293-2134	outside tap - south	S. Good	10-28-87	1
Hank Wetzel	1255 Edgewater	Elkhart		outside tap - south	P. Dorsey	10-28-87	1
	1303 Edgewater	Elkhart		outside tap - south	S. Good	10-28-87	1
Holmes	1315 Edgewater	Elkhart	522-2599	kitchen sink	P. Dorsey	10-28-87	1
	1319 Edgewater	Elkhart		outside tap - south	S. Good	10-28-87	1
[redacted]	1403 Edgewater	Elkhart	295-7601	outside tap - west	P. Dorsey	10-28-87	1
[redacted]	1411 Edgewater	Elkhart			S. Good	10-28-87	1
Debra Ludlow	1415 Edgewater	Elkhart	293-1027	outside tap - east	S. Good	10-28-87	1
[redacted]	1423 Edgewater	Elkhart	294-3971	outside tap	P. Dorsey	10-28-87	1
[redacted]	1427 Edgewater	Elkhart	295-5114	kitchen sink	S. Good	10-28-87	1
[redacted]	1418 Navajo	Elkhart		outside tap - south	P. Dorsey	10-28-87	1
[redacted]	1419 Navajo	Elkhart	295-1724	kitchen sink	S. Good	10-28-87	1
[redacted]	1414 Navajo	Elkhart		outside tap - west	P. Dorsey	10-28-87	1
[redacted]	1417 Navajo	Elkhart	293-5977	bathtub	S. Good	10-28-87	1
	1415 Navajo	Elkhart		outside tap - south	P. Dorsey	10-28-87	1
[redacted]	1413 Navajo	Elkhart	295-3725	outside	P. Dorsey	10-28-87	1
Judith Haines	1633 El Reno	Elkhart	293-4437	kitchen sink	P. Dorsey	10-28-87	1
[redacted]	1411 Navajo	Elkhart	522-0854	kitchen sink	S. Good	10-28-87	1
[redacted]	1400 Navajo	Elkhart	293-1756	outside tap - east	P. Dorsey	10-28-87	1
	1317 Navajo	Elkhart		outside tap - west	P. Dorsey	10-28-87	1
Steve Datema	1337 Edgewater	Elkhart	875-7031	outside tap - west	P. Dorsey	10-28-87	1
[redacted]	1426 El Reno	Elkhart		outside tap - west	P. Dorsey	10-29-87	1
Lizzie Bentley	1429 El Reno	Elkhart		kitchen sink	S. Good	10-29-87	1
Burk	1420 El Reno	Elkhart	522-0370	outside tap - west	P. Dorsey	10-29-87	1
[redacted]	1401 El Reno	Elkhart		outside tap - west	S. Good	10-29-87	1
	1410 El Reno	Elkhart		outside tap - north	P. Dorsey	10-29-87	1
Steve Swihart	1333 El Reno	Elkhart	294-1995	outside tap - west	S. Good	10-29-87	1
McBroom	1249 El Reno	Elkhart	294-3186	outside tap - east	P. Dorsey	10-29-87	1
Greg Welsch	1225 Okema	Elkhart	294-2049	outside tap - west	S. Good	10-29-87	1
Brememan	1219 Okema	Elkhart	522-1238	kitchen sink	P. Dorsey	10-29-87	1
	1212 Waurika	Elkhart		outside tap - south	S. Good	10-29-87	1
	1218 Waurika	Elkhart		outside tap - front	P. Dorsey	10-29-87	1
R.K. Ranson	1228 Waurika	Elkhart	295-3606	kitchen sink	S. Good	10-29-87	1
Maude Bennit	1236 Waurika	Elkhart		outside tap - east	P. Dorsey	10-29-87	1
J. Lightner/J. Witness Church	1410 Waurika	Elkhart	293-1300	(J. Lightner's restroom	S. Good	10-29-87	1
Lacefield	1407 Waurika	Elkhart		outside tap - east	P. Dorsey	10-29-87	1
Doris Glant	1411 Waurika	Elkhart		outside tap - east	S. Good	10-29-87	1
[redacted]	1430 Waurika	Elkhart		outside tap - east	P. Dorsey	10-29-87	1
	2000 Vermont	Elkhart		outside tap - north	S. Good	10-23-87	
Trent	2200 Pennsylvania	Elkhart	293-8523	outside tap - west	P. Dorsey	10-29-87	1
Marmarren #145	1338 Laramie	Elkhart		outside tap - east	P. Dorsey	10-29-87	1

NE	ADDRESS	CITY	TELEPHONE	SAMPLE LOCAL	COLLECTOR	DATE COLLECTED	T
ifford Morgan #1	2521 18th street	Elkhart	293-2702	N outside spigot	P. Dorsey	9-15-87	1
oyd Smoot	1817 Leininger	Elkhart	295-2221	kitchen sink	S. Good	9-17-87	9
rnal Dean	1803 Leininger	Elkhart	294-1135	kitchen sink	P. Dorsey	9-15-87	1
William Miller	1807 Leininger	Elkhart	293-5892	outside tap-west	P. Dorsey	9-15-87	1
win W. Miller	1800 Leininger	Elkhart	293-5892	outside tap - east	P. Dorsey	9-15-87	2
ifford Cerafico Sr.	1814 Leininger	Elkhart	294-2870	outside tap - west	P. Dorsey	9-15-87	2
thur Payne Sr.	1811 Leininger	Elkhart		outside tap - south	P. Dorsey	9-15-87	
yce Elliott	1825 Leininger	Elkhart		outside tap - west	P. Dorsey	9-15-87	3
vid Cooper	1816 Leininger	Elkhart		outside tap - east	P. Dorsey	9-15-87	3
nald Bradshaw	1831 Leininger	Elkhart	293-4410	kitchen sink	P. Dorsey	9-15-87	3
ry Harter	1900 Leininger	Elkhart	293-5240	kitchen sink	P. Dorsey	9-16-87	2
ker	1919 Leininger	Elkhart		outside tap - east	P. Dorsey	9-16-87	1
rret Inc.	1926 Leininger	Elkhart	295-1492	inside tap/at well	P. Dorsey	9-16-87	1
Grove / M. Freel landlord	1923 Leininger	Elkhart	294-6056	(Mcthekitchen sink	P. Dorsey	9-16-87	1
rolyn Yoder (landlord)	2003 Leininger	Elkhart	295-1837	kitchen sink	P. Dorsey	9-16-87	1
rolyn Yoder (landlord)	1929 Leininger	Elkhart	295-1837	kitchen sink	P. Dorsey	9-16-87	1
rolyn Yoder	1931 Leininger	Elkhart	295-1837	bathroom sink	P. Dorsey	9-16-87	1
n Keller	1928 Leininger	Elkhart	293-9629	kitchen sink	P. Dorsey	9-16-87	1
ard's Auto Service	2000 Leininger	Elkhart	293-4011	bathroom sink	P. Dorsey	9-16-87	1
eryl Dare/M. Payne - LL)	2017 Leininger	Elkhart	293-9957	kitchen sink	P. Dorsey	9-16-87	1
Thalheimer/R. Huffman (LL)	2013 Leininger	Elkhart	293-6288	kitchen sink	P. Dorsey	9-16-87	1
nberg	2023 Leininger	Elkhart		outside tap - west	P. Dorsey	9-16-87	1
lter Diller	2027 Leininger	Elkhart	293-3072	kitchen sink	P. Dorsey	9-16-87	1
ller	2030 Leininger	Elkhart		outside tap - east	P. Dorsey	9-16-87	1
da's Cafe	2320 Nappanee	Elkhart	293-5711	kitchen sink	P. Dorsey	9-16-87	1
shler	1807 Bornemann	Elkhart		outside tap - south	P. Dorsey	9-16-87	2
ith's Picture Framing	2317 S. 18th	Elkhart	293-1731	shop sink - w. wall	P. Dorsey	9-16-87	2
	1813 Bornemann	Elkhart		outside tap - west	P. Dorsey	9-17-87	9
cie Snyder/Cornerstone	1810 Bornemann	Elkhart	293-7489	bathroom sink	S. Good	9-17-87	9
lley Machine Products	1840 Bornemann	Elkhart	294-2617	inside tap	P. Dorsey	9-17-87	9
sley Rogers (LL)	1839 Bornemann	Elkhart	255-5833	(Mishaoutside tap - east	S. Good	9-17-87	9
ister Sheet Metal	1900 Bornemann	Elkhart	293-4802	employee sink	S. Good	9-17-87	10
nn's Restaurant	1915 Bornemann	Elkhart	293-1915	bar sink	P. Dorsey	9-17-87	10
	1910 Bornemann	Elkhart		outside tap - east	S. Good	9-17-87	10
dy Smith	1935 Bornemann	Elkhart		outside tap - west	P. Dorsey	9-17-87	10
kel	1932 Bornemann	Elkhart	522-2553	kitchen sink	P. Dorsey	10-28-87	3
	1938 Bornemann	Elkhart		outside tap - east	S. Good	9-17-87	10
s Shoffner	2015 Bornemann	Elkhart	293-1189	outside tap - west	P. Dorsey	9-17-87	10
nyder/C. Weber (landlord)	2000 Bornemann	Elkhart	293-1813	outside tap - west	S. Good	9-17-87	11
da Wood	2033 Bornemann	Elkhart	293-0922	outside tap - east	P. Dorsey	9-17-87	11
er Mfg / Charles Weber	2016 Bornemann	Elkhart	293-1813	bathroom sink	S. Good	9-17-87	10
rice/M. Burnette (LL)	2035 Bornemann	Elkhart	293-6472	outside tap - south	S. Good	9-17-87	11
ra Fine / G. Sotebeer	1817 Markle	Elkhart	295-4249	bathroom sink	P. Dorsey	9-17-87	12
l Machine/C. Donaldson	1806 Markle	Elkhart	294-1002	well pump in pit	S. Good	9-17-87	11
	1810 Markle	Elkhart		outside tap - south	P. Dorsey	9-17-87	12
a McNutt	1812 Markle	Elkhart	295-8380	kitchen sink	P. Dorsey	9-17-87	12
	1813 Markle	Elkhart		outside tap - west	S. Good	9-17-87	12
ve Machine / G. Grove	2220 19th	Elkhart	293-0231	bathroom sink	S. Good	9-17-87	1
s Manufacturing/A. Arthur	1918 Markle	Elkhart	294-3146	kitchen sink	P. Dorsey	9-17-87	1
mander / Gene Price #50	1923 Markle	Elkhart	295-4131	employee sink	S. Good	9-17-87	1

Above or Below MCL's

SAMPLE NUMBER	TCE	TCA	DCA	DCE	T12DCE	PCE	MECL	BENZE	OTHER1	OTHER2	OTHER4	NOTES1	NOTES2
001	8	PBNQ									Above		
002											Clean	None Detected	
003		PBNQ									Below		
004											Clean	None Detected	
005											Clean	None Detected	
006											Clean	None Detected	
007											Clean	None Detected	
008											Clean	None Detected	
009											Clean	None Detected	
010											Clean	None Detected	
011											Clean	None Detected	
012			4								Below		
013											Clean	None Detected	
014	Trace										Below		
015			4								Below		
016			4								Below		
017			3								Below		
018			4								Below		
019	Trace	Trace	5								Above		
020	35	40	1								Above		
021											Clean	None Detected	
022	5	32	4								Above		
023	7	PBNQ	4								Above		
024	15	166	2		5						Above		
025	7-10	90-110	5	3							Above		
026		Trace									Below		
027											Clean	None Detected	
028	4	40									Below		
029		18									Below		
030		2									Below		
031											Clean	None Detected	
032											Clean	None Detected	
033											Clean	None Detected	
034		2									Below		
035		Trace									Below		
036		Trace									Below		
037											Clean	None Detected	
038	2										Below		
039											Clean	None Detected	
040	16	95	5		2						Above		
041		7									Below		
042	2	34	4	4	Trace						Below		
043	10										Above		
044	17										Above		
045	4										Below		
046		4									Below		
047		15									Below		
048		15									Below		
049		10									Below		
050	2	12	3								Below		


KOHLHASS ST
SUWANEE
Edith School
LAWN
RAINBOW BEND BLVD
MEISNER
DORSEY
LINDEN AV
HIGHLAND
MASSACHUSETTS AVE
NEWELL CT
CLINTON
SOUTH
Sewage Treatment Plant
EDGEWATER
VERMONT AV
PENNSYLVANIA AV
LARAMIE ST
JONES
ILLINOIS AV
WAURIKA
OKEMA
EL RENO
NAVAJO
AVALON
IOWA AV
FRANKLIN
WEST
26TH ST
CONRAIL
FIELDHOUSE
MARKLE AV
17TH
BORNEMAN AV
LEININGER AV
20TH
19TH
18TH
PIGEON
ILLINOIS

083

eis

VOLATILE ORGANIC COMPOUND (VOC) ANALYSIS REPORT

CLIENT: Mr. Don Bachman
Coast R.V. Inc.
1631 West Bristol St.
Elkhart, IN 46514

P.O. # E-8642

Sample ID:
. Trip Blank
. East Well
. West Well

Date Reported: 10-20-87
EIS Lab No.: 3117G-3119G
Sample Date: 9-24-87
Date Received: 9-24-87
Date Analyzed: 10-1-87
Samples Received
Refrigerated: Yes ___ No ✓
In 40 cc Vials: Yes ✓ No ___
Air Space: Yes ✓ No ✓

RESULTS

- The test procedures used for this analysis, a partial listing of compounds detectable by these procedures and the applicable Practical Quantitation Limits, are described in Tables 1 and 2 of this report packet.

- Practical Quantitation Limits (PQL) define the lower limit at which the compounds of interest can routinely be quantitated in environmental samples. These limits in general meet or exceed regulatory requirements.

- In some situations, compounds can be detected at levels below the PQL. In these cases, EIS attempts to report the presence of these compounds by giving an estimated concentration.

- Sample results are reported in Table 3. This table will list ONLY THOSE COMPOUNDS which are actually detected in the sample. If no compounds of interest are detected, the following type of statement is given:

  "No Volatile Organic Compounds (VOC) were detected in this sample".

  A review of Table 2 will then show what compounds were not detected.

- The East Well vials had an air bubble which may or may not affect results.

- Chromatograms of the analysis are enclosed.

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Andrea Rozite
LABORATORY DIRECTOR

TABLE 1

REFERENCE METHODS/ANALYTICAL PROCEDURES

REFERENCES

- "Test Methods: Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", USEPA-600/4-82-057, July 1982, Methods 601, 602, 624
- "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", SW-846, Third Edition, November 1986

ANALYTICAL PROCEDURES

VOC of interest are liberated from the matrix by use of Purge and Trap procedures. Surrogate compounds are employed for each Purge and Trap run.

The effluent from the GC chromatograph is monitored by Photoionization and Hall 700A Electrolytic Conductivity Detectors operating in series. Component separation is achieved by a SPB-1 capillary column, 60m x 0.75 mm I.D.

In certain situations, confirmation of the sample response is performed by use of Mass Spectrometry.

TABLE 2

PARTIAL LISTING - VOLATILE ORGANIC COMPOUNDS
DETECTABLE BY PROCEDURES LISTED IN TABLE 1

Compound name	PQL (μg/l)
Benzene	1
Bromodichloromethane	1
Bromoform	1
Bromomethane	1
Carbon Tetrachloride	1
Chlorobenzene	1
Chloroethane	1
2-Chloroethylvinyl Ether	10
Chloroform	1
Chloromethane	1
Dibromochloromethane	1
1,2-Dichlorobenzene	1
1,3-Dichlorobenzene	1
1,4-Dichlorobenzene	1
1,1-Dichloroethane	1
1,2-Dichloroethane	1
1,1-Diochloroethylene	1
t-1,2-Dichloroethylene	1
1,2-Dichloropropane	1
c-1,2-Dichloropropene	1
t-1,2-Dichloropropene	1
Ethyl Benzene	1
Methylene Chloride	1
1,1,2,2-Tetrachloroethane	1
Tetrachloroethylene	1
1,1,1-Trichloroethane	1
1,1,2-Trichloroethane	1
Toluene	1
Trichloroethylene	1
Vinyl Chloride	2
Acetone	10
Methyl Ethyl Ketone	10
Methyl Isobutyl Ketone	10
Styrene	1
Vinyl Acetate	10
o-xylene	1
2-Hexanone	10
m & p-xylene	1
Tetrahydrofuran	10
1,2-Dibromoethane	1
Dichlorodifluoromethane	1
Trichlorofluoromethane	1
c-1,2-Dichloroethylene	1

TABLE 3

ANALYTICAL RESULTS - VOC

Parameter	Concentration (µg/l) Trip Blank	East Well	West Well	West Well Duplicate
Acetone	35	N.D.	N.D.	N.D.
Methylene Chloride	2.8	N.D.	N.D.	N.D.
Chloroethane	N.D.	N.D.	<1	<1
1,1-Dichloroethane	N.D.	N.D.	<1	<1
Ethyl Ether *	N.D.	N.D.	73	72

* Identity of this compound is based on Retention Time data. No confirmation by GC/MS was made.

Notes

1. N.D. means Not Detected

2. A less than (<) value indicates that the compound was detected but was below the PQL shown.

3. The West Well showed the presence of an early eluting compound responding to the Hall Electrolytic Conductivity Detector. The identity of this compound is unknown but it is most likely a very low boiling species (gaseous) such as dichlorodifluoromethane. Its estimated concentration is 5 - 20 µg/l.

4. The presence of acetone in the Trip Blank could be due to Coast R.V. air concentrations of Acetone. If this is the case, vials used for collecting VOC samples should not be stored in the plant.

VOC ANALYSIS REPORT CONTINUED

SURROGATE COMPOUND RECOVERY

o Compounds used and Quality Control Limits

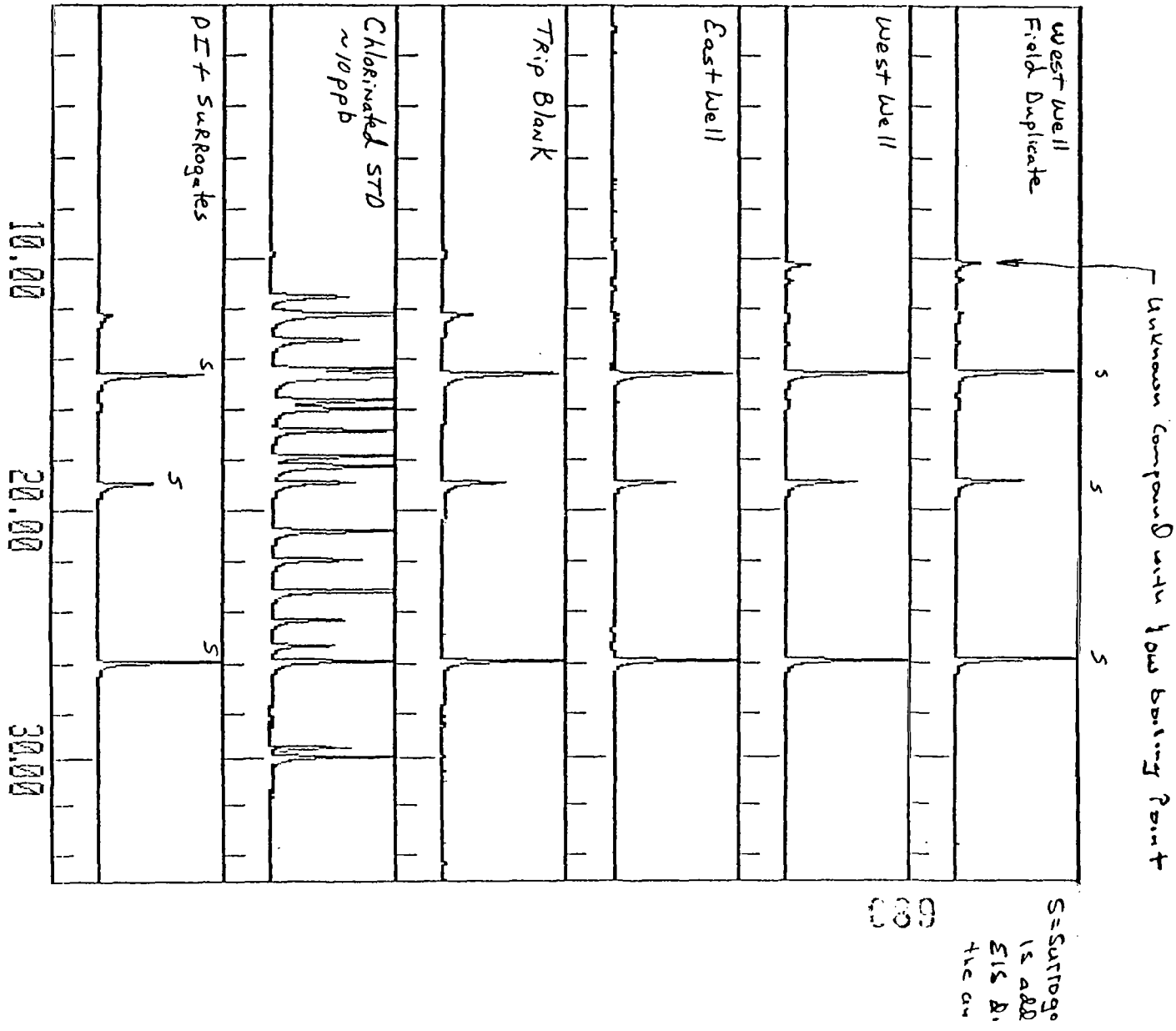
Parameter	Compound Number	Applicable Detector	Quality Control Limits (% R)
Bromochloromethane	1	Hall	70 - 130
1-Bromo-2-chloroethane	2	Hall	70 - 130
1,4-Dichlorobutane	3	Hall	70 - 130
Toluene, d6	4	PID	70 - 130
1,9-Decadiene	5	PID	70 - 130

o Recovery data for this group of samples

Client Sample Description	% Recovery #1	#2	#3	#4	#5
Trip Blank	97	108	101	100	101
East Well	90	103	100	94	101
West Well	99	118	108	99	102
West Well (DUP)	97	122	104	101	107

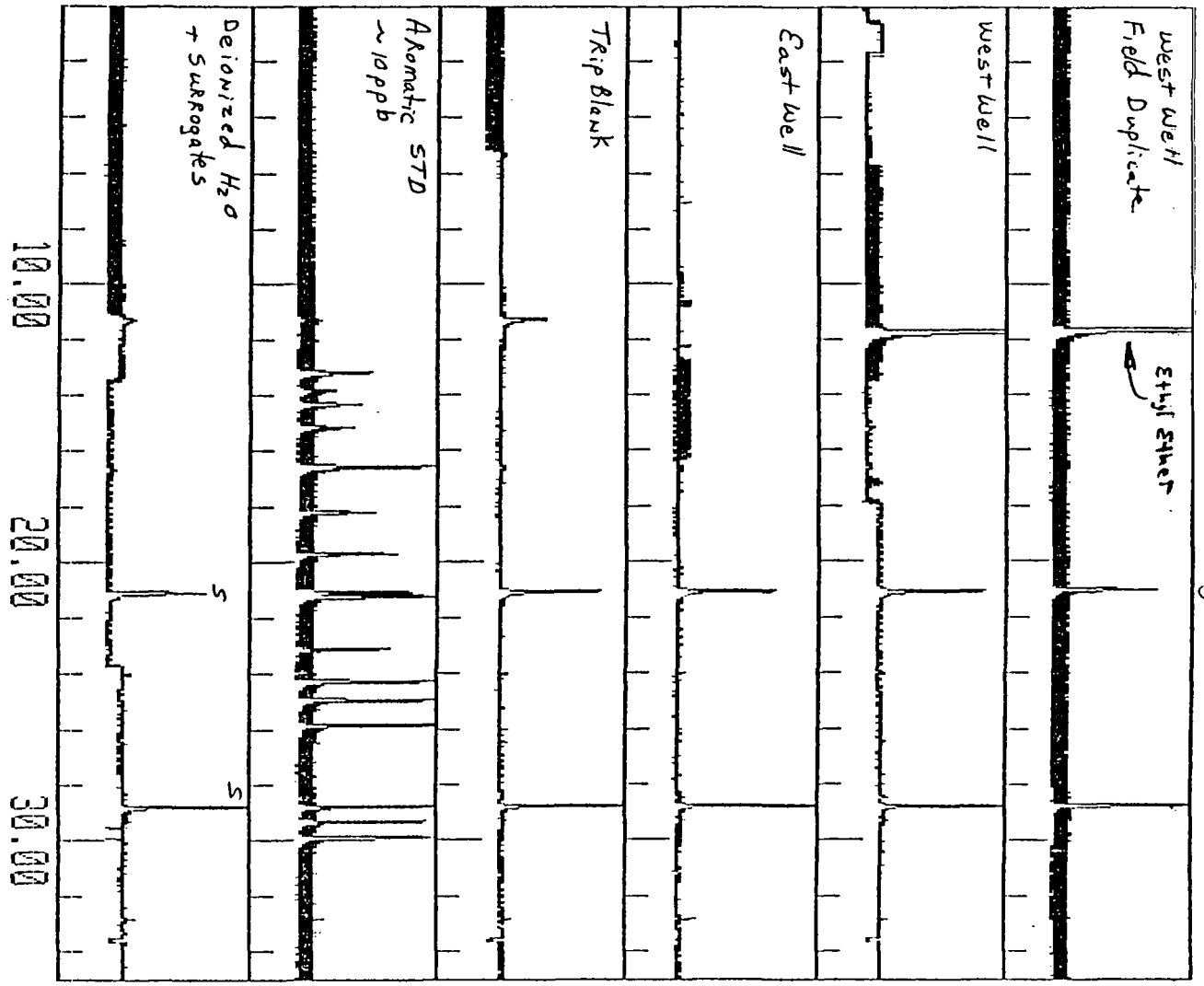
COAST RV 9-24-87 SAMPLES vs CHLORINATED

Chromatogram	Data File	Sample Name	Start Time (min)	Stop Time (min)	Scale Range (mV)	Scale Offset (mV)
1	VOCRDB2	DI+SURR5	0.00	35.00	60	12
2	VOCRDB7	STD 910 (LZ)	0.00	35.00	60	12
3	VOCRDB3	31176(5ml+SUR)	0.00	35.00	60	12
4	VOCRDB5	31186 (5ml+SUR)	0.00	35.00	60	12
5	VOCRDB6	31196 (5ml+SUR)	0.00	35.00	60	12
6	VOCRDB6B	31196(5ml+SUR)Fi	0.00	35.00	60	12



COAST RV 9-24-87 SAMPLES vs AROMATIC VOC

Chromatogram	Data File	Sample Name	Start Time (min)	Stop Time (min)	Scale Range (mV)	Scale Offset (mV)
1	VOCRDA2	DI+SUR#5	0.00	35.00	0	-5
2	VOCRDA7	STD 910 (L2)	0.00	35.00	0	-5
3	VOCRDA3	31176(5ml+SUR)	0.00	35.00	0	-5
4	VOCRDA5	31186 (5ml+SUR)	0.00	35.00	0	-5
5	VOCRDA6	31196 (5ml+SUR)	0.00	35.00	0	-5
6	VOCRDA6B	31196(5ml+SUR)Fi	0.00	35.00	0	-5



EIS/GEMEINHARDT RESULTS LIST
Drinking Water Wells

Ø EIS

DO NOT BATHE

Mr. Rex Rife 264-4646 — 4000 ppb 1,1,1 TCA
CBA — 520 ppb TCE
28135 Hively Ave. — 92 ppb 1,1 Dichloroethane
Elkhart, IN 46517 — 71 ppb 1,1 Dichloroethene

#5 & #6 — 6.6 ppb TCE
83 ppb 1,1,1 TCA
ECHD letter sent / letter date 8/11/67

Mr. Doug Corban — 2400 ppb 1,1,1 TCA
Century Distributing 295-6261 — 720 ppb TCE
2311 South Nappanee — 190 ppb 1,1 DCE
Elkhart, IN. 46517

#9 ECHD letter sent / letter date 8/11/87

^^

ABOVE MCL's

295-2233

Mr. Tom Walerko — *720 ppb 1,1,1 Trichloroethane
Walerko Tool &Engineering Corp. — 87 ppb 2-Butanone
1935 Lusher Ave. — 64 pppb Tetrachloroethane
Elkhart, IN 46517 — * 40 ppb TCE 10 ppb
1,1-Dichloroethene 2.6 ppb Toluene

#65
ECHD letter sent / letter date 8/31/87

New Global / MINV

Mr. Marty Martins 522 — '5.8 ppb TCE
Trans America Designs 6672 — 24 ppb 1,1,1 TCA
57642 CR 3 South
Elkhart, IN 46517

vacated in 2 weeks new owner notified by [illegible]

#42 ECHD letter sent / letter date 8/31/87

^^

BELOW MCL's

674-6313

Mr. Rex Widmeyer — 89 ppb 1,1,1 TCA
Rupel Engineered Products
57738 CR3
Elkhart, IN.

#41 ECHD letter sent / letter date 8/31/87

Mr Ancel Patrick
Emerson Musical Instruments, Inc.
57760 Holiday Place
Elkhart, IN. 46517 — 26 ppb 1,1,1 TCA

293-1398

#48 ECHD letter sent / letter date 8/31/87

#47 ND SW corner of building 40-45 ft deep

Mr. Lynn Grove — 98 ppb 1,1,1 TCA
Grove Machine, Inc. — 3.1 ppb 1.1 DCA
2220 19th Street — 2.2 ppb TCE
Elkhart, IN. 46517

293-1231

#86 ECHD letter sent / letter date 8/31/87

Mr. Gordon Robinson
Custom Vinyl
2150 West Lusher Elkhart, IN 46517 — 16 ppb 1,1,1 TCA

#293-1502 Diane

#66 ECHD letter sent / letter date 8/31/87

Mr. Carl Gilley — 3.0 ppb 1,1,1 TCA
Gilley Van Conversions, Inc.
2031 West Mishawaka Road
Elkhart, IN 46517

293-3270

#78 ECHD letter sent / letter date 8/31/87

Mr. John Cullip — 4.3 ppb 1,1,1 TCA
Cullip Tool & Die
1900 Fieldhouse
Elkhart, IN 46517

293 0251

#67 ECHD letter sent / letter date 8/31/87

Mr. Thomas L. Hood — 12 ppb 1,1,1 TCA
H & A Manufacturing
2033 Borneman — 11 ppb trans 1,2 Dichloroethene
Elkhart, IN 46517

293 0922

#72 ECHD letter sent / letter date 8/31/87

Ms. Dixie Snyder 3.2 ppb 1,1,1 TCA
Cornerstone Auto, Inc.
1810 Borneman
Elkhart, IN 46517

293-7488

#73 ECHD letter sent / letter date 8/31/87

Mr. Elvin Stewart 5.0 ppb 1,1,1 TCA
Charlotte 57912 Better Products,
Inc. Elkhart, IN 46517

522 7891

#63 ECHD letter sent / letter date 8/31/87

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^^^

TRACE LEVELS

Mr. Dick Kronewitter 3.8 ppb trans 1,2 DCE
Howard's Auto Service
2000 Leininger
Elkhart, IN 46517

293 4011

#74 ECHD letter sent / letter date 8/31/87

Mr. John Collins	#31	4.1 ppb Styrene
Leer Industries, Inc.	Corp. Office	Blg. #4
28858 Venture Drive		
Elkhart, IN. 46514	#32 ND	Fiberglass Plant Blg #1
	#33 ND	Warehse Blg #1
	#34 ND	Aluminum Bld #2
	#35 ND	Women's Rm Blg #3

294 53

#31 ECHD letter sent / letter date 8/31/87

MDM 9-01-87

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* Double check

No Start Mapping Here

NON-DRINKING WATER SUPPLY WELLS CONTAMINATED WITH VOC'S

Mr. Ed fetters 3.0 ppb 1,1,1 TCA
Century Chemical Products
P.O. Box 1442
Elkhart, IN. 46515

#45 NO ECHD notification deemed necessary

Mr. Dee Cagle
Bock Industries' Inc.
57540 SR 19 North
Elkhart, IN 46517

#91 — ? locale — 150 ppb TCE, 5.2 ppb 1,1,1 TCA

#11 — N of main plant — 42 ppb PCE, 21 ppb TCE, 14 ppb 1-2 DCE, 2.1 ppb 1,1,1 TCA

#12 — S of main plant — 130 ppb TCE, 4.3 ppb 1,1,1 TCA

#91,11,12 — No ECHD notification deemed necessary

Mr. Bill Wagoner
Mufflers Unlimited
1931 Mishawaka Road
Elkhart, IN 46517

32 ppb TCE
3.5 ppb 1,1,1 TCA

#77 — No ECHD notification deemed necessary

Mr. Clark Hamilton
Gemeinhardt
PO Box 788
Elkhart IN 46515

96 — 400 ppb PCE, 6.8 ppb TCE, 8.7 ppb 1,1,1 TCA

#96 & 97 — 97 — 7000 ppb PCE, 280 TCE

No ECHD notification deemed necessary

Mr. Jack Culbertson
Honey RV's Inc.
1809 West Hively
Elkhart, IN 46517

10 ppb 1,1,1 TCA
9.7 ppb TCE

#13 — No ECHD notification deemed necessary

Mr. Harry Zavatsay
3114 Cherry Tree
Elkhart, IN. 46514

7.6 ppb 1,1,1 TCA
6.4 ppb TCE

WHERE IS THIS BUSINESS?

? #8 Business closed - bottled water utilized when open well is (was) drinking water well
building - well may have been destroyed
No ECHD notification deemed necessary

004

NON - DETECTABLE For VOC's

1 Mr. Richard Daffinee
Valley Machine Products
1840 Borneman
Elkhart, IN 46517

2 Mr. Tim Lamb
Ferret, Inc.
1926 Leininger Ave
Elkhart, IN 46516

3 Mr. Gene Price
Thunander, Inc.
1923 Markle Ave
Elkhart, IN 46517

4 Mr. Jim Slocum
58865 Towne Road
Elkhart, IN. 46517

5 Mr. Harold Frick
Rieth-Riley Construction
2500 West Lusher
PO Box 1108
Elkhart, IN46515

Leer Industries One DW positive - Trace Styrene
4 ND DW and Misc use

6 Mr. Ken Courtney
Courtney Machine, Inc.
57283 Nagy Drive
Elkhart, IN. 46517

7 Ms. Mary Harrison
57611 Edward ST
Elkhart, IN 46517

8 Ms. Cathy Christian
27639 Maple Valley
Elkhart, IN. 46517

9 Mr. Gary Beck
27471 Lotus Lane
Elkhart, IN. 46517

10 Mr. Robert Walter
57827 Kreighbaum
Elkhart, IN 46517Mr. Mark Wiese

11 Sun Chaser
57858 Charlotte
Elkhart, IN 46517

12 Mr. Gary Gill
International Merchandising Co., Inc
57843 Charlotte
Elkhart, IN 46517

13 Mr. Bob Noyes
Modern Machine & Stamping Co. 52 & 55
28533 Holiday Place
Elkhart, IN 46517

14 Ms. Sharon Booker
Todd Engineering Sales
28706 Holiday Place
Elkhart, IN 46517

15 Mr. Sam Paolillo
Travel Units
28748 Holiday Place
Elkhart, IN 46517

Emerson Musical Instruments 26 ppb TCA
57760 Holiday Place & ND

16 Mr. Walt Stankovich
Ranch Fiberglass
28564 Holiday Place
Elkhart, IN.

17 Mr. Tom Christy
Wee-Shape-Frames
58211 CR 105 South
PO Box 207
Elkhart, IN 46515

18 Mr. Clarence Lomg (Long)
57945 CR 105
Elkhart, IN 46517

19 Mr. Gerald Fawley
~~51400~~ 59140 CR 105
Elkhart, IN 46517

20 Mr. Clyde Cocanower
Central States Machine Service
57552 CR 105
Elkhart, IN. 46517

21 Mr. Frank Trecy
Miller Structures
58120 CR 3 South
PO Box 1283
Elkhart, IN 46515

22 Mr. Ernie Barnes
58516 CR 3
Elkhart, IN 46517

23 Mr. Jesse Glaum
United Roll Forming
58288 CR 3
Elkhart, IN 46517

24 Ms. Holly Sailor
National Coach
58306 CR 3 South
Elkhart, IN 46517

25 Mr. Mike Jordan
Otto Coach Corp
58356 CR 3
Elkhart, IN 46517

26 Ms. Stacy Krise
Circle J Horse Trailers
58456 CR 3 South
Elkhart, IN. 46517

27 Mr. Gerald Lindstrom
Patriot Homes
57420 CR 3 South
Elkhart, IN 46517

28 Mr. Ed Freel
KampCo Steel Products
57533 CR 3 South
Elkhart, IN 46517

29 Mr. Rodney Miller
Millenium Products
57832 CR 3 South
Elkhart, IN 46517

30 Mr. Bill Kindig
Park Haven, Inc.
57974 CR 3
Elkhart, IN 56517

36 Mr. Steve Martin
BABSCO
28274 CR 20
PO Box 2387
Elkhart IN 46515

37 Mr. Larry Drudge
Yellowstone, Inc.
28163 CR 20
PO Box 1128
Elkhart, IN

38 Mr. Densil Walters
Walter's Auto Sales
28080 CR 20

Elkhart, IN 46517

39 Mr. Larry McGary
Noble
28049 CR 20 West
Elkhart, IN 46517

40 Mr. Wayne Blakesley
Crown International
1718 West Mishawaka Road
Elkhart, IN 46517

41 Mr. Ed Fetters
Century Chemical Products
PO Box 1442 28790 CR 20
Elkhart, IN. 46515

42 Mr. Gene Allen
Auto Form Corp.
28620 CR 20 West
Elkhart, IN 46517

43 Mr. Terry Deak
Deak Machine & Tool
28552 CR 20
Elkhart, IN 46517

44 Mr. Al Miller
Torch Industries
PO Box 2268
Elkhart, In. 46515

45 Mr. Raymond Willard
Willard's Store
28050 CR 20
Elkhart, IN 46517

46 Mr. Ken Kennedy
Hartson Kennedy Cabinet Co.
PO Box 607 28322 CR 20
Elkhart, IN 46517

48 Mr. Dane Peterson
Mitchell Welding Supply
2421 S. Nappanee
Elkhart, IN. 46515

49 Mr. Jim Reid
Champion Motor Coach
58277 SR 19 South
Elkhart, IN 46515

50 Mr. Larry Searer
Elkhart Rivet & Register Co.
57985 SR 19 South
Elkhart, IN 46517

090

Mr. Don Campbell
First National Bank
301 South Main St.
Elkhart, IN 46516

Mr. Clark Hamiliton
Gemeinhardt

#93 & 94 ND
#96 & 97 non Drinking - VOC's Detected

#96	400	ppb PCE
	6.8	ppb TCE
	8.7	ppb 1,1,1 TCA
#97	7000	ppb PCE
	280	ppb TCE

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Mr. Don Campbell
First National Bank
301 South Main St.
Elkhart, IN 46516

Mr. Clark Hamiliton
Gemeinhardt

#93 & 94 ND
#96 & 97 non Drinking - VOC's Detected

#96 400 ppb PCE
6.8 ppb TCE
8.7 ppb 1,1,1 TCA

#97 7000 ppb PCE
280 ppb TCE

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

051						Clean	None Detected	
052						Clean	None Detected	
053			5			Above		
054		4				Below		
055	11	1				Above		
056		28	3	3		Below		
057	109	2368	7	214		Above	now on city water	
058	13	2				Above		
059	6	1				Above		
060	516	390	8	2	4	Above	POU Filter refused	
061	Trace	72	1	1		Below		
062	71	24		1		Above	POU Filter	
063	53	21		1		Above		
064	5	8				Above		
065	1390	34		Trace		Above	City Water offered	
066	6					Above		
067	93	34				Above	POU Filter	
068	6	5				Above		
069	Trace					Below		
070	Trace					Below		
071						Clean	None Detected	
072	608	3800	435	1		Above		
073	1	146				Below		
074	Trace					Below		
075		10	3			Below	POU Filter	
076	2	14		2		BElow		
077	6	130	3	12		Above	Peak at 1.47	
078	30	719	3	85	1	Above	POU Filter	3 other peaks detected
079	45	827	4	129	1	Above	City Water	
080	30	572	8	59	1	Above	POU Filter	
081	4	266	7	17		Above	POU Filter	
082		11	3	5		Below		
083		257	7	15		Above	POU Filter	
084		15	2	3		Below		
085						Clean	None Detected	We found out after sam
086	9	263	2	15		Above	POU Filter	Peak at 1.47, 3 other
087	4	330	2	17		Above	POU Filter	Peak at 1.47
088	2	15				Below	Peaks at 1.47 and 9.15	
089	2	108				Below	Peaks detected at 1.47 and 9.15	
090	2	2				Below	Peak detected at 1.47	
091	3	33				Below	Peak detected at 1.47	
092	14	146	4	8		Above	installed their own filter	
093		3	2			Below		
094		3			1	Below		
095						Clean	None Detected	
096					1	Below		
097	33				1	Above	2 ppb CCl4	
098	160	37	43	27	1	Above	POU Filter	
099	11	74	19	14	1	Above		
100	11		3		1	Above	3 ppb CCl4	

101	2				1			Below	
102					Trace		PRSNT	Below	
103							PRSNT	Below	
104								Clean	None Detected
105								Clean	None Detected
106	1	2						Below	
107	3	4	Trace					Below	
108	1	3						Below	
109	5	8	2	2		1		Above	
110								Clean	None Detected
111	4	72	17	7		2	PRSNT	Above	
112	3	63	11	10		1	PRSNT	Above	
113	2	40	Trace	6				Below	Peak at 1.46
114	3	67	2	9				Above	Peak at 1.46
115	2	16						Below	Peak at 1.46
116	4	153	2	14		1		Above	Peak at 1.46
117	4	114	3	12		1		Above	Peak at 1.46
118	3	142	6	16		3		Above	Peak at 1.46
119	4	140	10	19		1		Above	Peak at 1.46
120	3	110	3	13		3		Above	Peak at 1.46
121	1							Below	
122	1		Trace	1				Below	
123								Clean	None Detected
124								Clean	None Detected
125	15	27	5	11	Trace	3		Above	
126	4	44	17	9		2		Above	Peak at 1.46
127	16	358	23	37				Above	POU Filter
128	6	144	18	14		3		Above	
129	21	276		43	Trace	3		Above	
130	10	234	13	20				Above	
131								Clean	None Detected
132								Clean	None Detected
133		2						Below	
134								Clean	None Detected
135								Clean	None Detected
136								Clean	None Detected
137								Clean	None Detected
138								Clean	None Detected
139	7	180	7	22	Trace	6		Above	
140		19	7	8		1		Above	
141		43	7	11		1		Above	
142								Clean	None Detected
143								Clean	None Detected
144		2	3	2				Below	
145		2						Below	

100	11		3		1			Above	3 ppb CCl4
101	2				1			Below	
102					Trace		PRSNT	Below	
103							PRSNT	Below	
104								Clean	None Detected
105								Clean	None Detected
106	1	2						Below	
107	3	4	Trace					Below	
108	1	3						Below	
109	5	8	2	2		1		Above	
110								Clean	None Detected
111	4	72	17	7		2	PRSNT	Above	
112	3	63	11	10		1	PRSNT	Above	
113	2	40	Trace	6				Below	Peak at 1.46
114	3	67	2	9				Above	Peak at 1.46
115	2	16						Below	Peak at 1.46
116	4	153	2	14		1		Above	Peak at 1.46
117	4	114	3	12		1		Above	Peak at 1.46
118	3	142	6	16		3		Above	Peak at 1.46
119	4	140	10	19		1		Above	Peak at 1.46
120	3	110	3	13		3		Above	Peak at 1.46
121	1							Below	
122	1		Trace	1				Below	
123								Clean	None Detected
124								Clean	None Detected
125	15	27	5	11	Trace	3		Above	
126	4	44	17	9		2		Above	Peak at 1.46
127	16	358	23	37				Above	POU Filter
128	6	144	18	14		3		Above	
129	21	276		43	Trace	3		Above	
130	10	234	13	20				Above	
131								Clean	None Detected
132								Clean	None Detected
133		2						Below	
134								Clean	None Detected
135								Clean	None Detected
136								Clean	None Detected
137								Clean	None Detected
138								Clean	None Detected
139	7	180	7	22	Trace	6		Above	
140		19	7	8		1		Above	
141		43	7	11		1		Above	
142								Clean	None Detected
143								Clean	None Detected
144		2	3	2				Below	
145		2						Below	

NAME	ADDRESS	CITY	TELEPHONESCDTWELL DEPTH	SAMPLE	TCE	TCA	DCA	DCE	T12
Clifford Morgan	2521 18th street	Elkhart	293-2702 NP9125-30	L-1	8	(30			
Lloyd Smoot	1817 Leininger	Elkhart	295-2221 KS9930'	L-2					
Bernal Dean	1803 Lieninger	Elkhart	294-1195 KP91Shallow	L-3			4	3	
E. William Miller	1807 Leininger	Elkhart	293-5892 WP91Shallow	L-4					
Edwin W. Miller	1800 Leininger	Elkhart	293-5892 EP9220'	L-5					
Clifford Cerafico Sr.	1814 Leininger	Elkhart	294-2870 WP92UNK	L-6					
Arthur Payne Sr.	1811 Leininger	Elkhart	SP(/UNK	L-7					
Joyce Elliott	1825 Leininger	Elkhart	WP93:00pm	L-8					
David Cooper	1816 Leininger	Elkhart	EP93:00pm	L-9					
Ronald Bradshaw	1831 Leininger	Elkhart	293-4410 KP93UNK	L-10					
Gary Harter	1900 Leininger	Elkhart	293-5240 KP92shallow	L-11					
Baker	1919 Leininger	Elkhart	EP910:30	L-12	4				
Ferret Inc.	1926 Leininger	Elkhart	295-1482 AP9125'	L-13					
Karl Grove	1923 Leininger	Elkhart	294-6056(KP911:00am	L-14					
Carolyn Yoder	2003 Leininger	Elkhart	295-1937 KP91shallow	L-15			4		
Carolyn Yoder	1929 Leininger	Elkhart	295-1837 KP91shallow	L-16			4		
Carolyn Yoder	1931 Leininger	Elkhart	295-1837 BP91shallow	L-17			3		
Lynn Keller	1928 Leininger	Elkhart	293-9629 KP91UNK	L-18			4		
Howards Auto Service	2000 Leininger	Elkhart	293-4011 BP91	L-19	Trace	Trace	5		
Cheryl Dare	2017 Leininger	Elkhart	293-9857 KP91	L-20	35	48	1		
Rochy Huffman(LL)	2013 Leininger	Elkhart	293-6288 KP912:35pm	L-21	29		5		
Timberg	2023 Leininger	Elkhart	WP91	L-22	5	32	4		
Walter Diller	2027 Leininger	Elkhart	293-3072 KP91shallow	L-23	7	PBNQ	4		
Miller	2030 Leininger	Elkhart	EP91:35pm	L-24	15	166	2		5
Linda's Cafe	2320 Nappanee	Elkhart	293-5711 KP91:50pm	L-25	7-10	98-110	5	3	
Mr. P. Mishler	1807 Borneman	Elkhart	OP92:20pm	L-26		Trace			
G.W Smith	2317 18th	Elkhart	293-1731 WP92:35	L-27					
	1813 Boreman	Elkhart	WP99:30	L-28	4	40			
Dixie Snyder	1810 Borneman	Elkhart	293-7488 BS99:30 am	L-29		18			
Valley Machine Produc	1840 Borneman	Elkhart	294-2617 P99	L-30		2			
Wesley Rogers(LL)	1839 Borneman	Elkhart	1-255-583ES99:45 am	L-31					
Shuster Sheet Metal	1900 Boreman	Elkhart	293-4802 BS910:00 a.	L-32					
Joann's Restaurant	1915 Borneman	Elkhart	293-1915 BP910:05 a.	L-33					
	1910 Borneman	Elkhart	ES910:15 a.	L-34		2			
Sandy Smith	1935 Borneman	Elkhart	P910:25 a.	L-35		TRACE			
	1932 Borneman	Elkhart	none taken	L-36					
	1938 Borneman	Elkhart	ES910:35 a.	L-37					
Jess Shaffner	2015 Borneman	Elkhart	293-1189 WP910:45 a.	L-38	2				
Charles Weber (LL)	2000 Borneman	Elkhart	293-1813 WS911:00 a.	L-39					
Wanda Hood	2033 Borneman	Elkhart	293-0922 EP911:05 a.	L-40	16	95	5		2
Charles Weber	2016 Borneman	Elkhart	293-1813 BS910:50 a.	L-41		7			
Martha Burnette (LL)	2035 Borneman	Elkhart	293-6472 SS911:10 a.	L-42	2	94	4	4	Tra
Greg Sotebeer	1817 Markle	Elkhart	295-4249 BP912:00 p.	L-43	10				
Claude Donaldson	1806 Markle	Elkhart	294-1002 AS911:20 a.	L-44	17				
	1810 Markle	Elkhart	SP912:15 p.	L-45	4				
Nina McNutt	1812 Markle	Elkhart	295-8980 KP912:25 p.	L-46		4			
	1819 Markle	Elkhart	WS912:45 p.	L-47		15			
Gilbert Grove	2220 19th Street	Elkhart	293-0231 BS91:00 p.	L-48		15			
	1918 Markle	Elkhart	294-3146 KP91:05 p.	L-49		10			
Thunander Corp.	1923 Markle	Elkhart	295-4131 S91:20 p.	L-50	2	12	3		
Merle Stouder	2004 Markle	Elkhart	293-0468 WP9130 feet	L-51					
Merle Stouder	2006 Markle	Elkhart	293-0468 EP911:25 a.	L-52					
Dale Laws	2011 Markle	Elkhart	293-5028 KP911:45 a.	L-53			5		
Jeffries Trucking/La	1800 Fieldhouse	Elkhart	294-2939 ?P91:45 p.	L-54		4			
James Leers	1812 Fieldhouse	Elkhart	294-8693 KP92:00 p.	L-55	11	1			
Cullip Tool & Die	1900 Fieldhouse	Elkhart	293-8251 BP9225-30 feet	L-56		28	3	3	
Walerko Tool & Engine	1935 Lusher	Elkhart	BS910:30 a.	L-57	109	2368	7	214	
Elkhart Hinge	1839 Lusher	Elkhart	293-2841 KP911:45 a.	L-58	13	2			
William Leers	1813 Lusher	Elkhart	294-4023 KS99:50 a.	L-59	6				

NAME	ADDRESS	CITY	TELEPHONE	SCDT	WELL DEPTH	SAMPLE	TCE	TCA	DCA	DCE	
Clifford Morgan	2521 18th street	Elkhart	293-2702		NP9125-30	L-1	8	(30			
Lloyd Smoot	1817 Leininger	Elkhart	295-2221		KS9930'	L-2					
Bernal Dean	1803 Lieninger	Elkhart	294-1195		KP91Shallow	L-3			4	3	
E. William Miller	1807 Leininger	Elkhart	293-5892		WP91Shallow	L-4					
Edwin W. Miller	1800 Leininger	Elkhart	293-5892		EP9220'	L-5					
Clifford Cerafico Sr.	1814 Leininger	Elkhart	294-2870		WP92UNK	L-6					
Arthur Payne Sr.	1811 Leininger	Elkhart			SP(/UNK	L-7					
Joyce Elliott	1825 Leininger	Elkhart			WP93:00pm	L-8					
David Cooper	1816 Leininger	Elkhart			EP93:00pm	L-9					
Ronald Bradshaw	1831 Leininger	Elkhart	293-4410		KP93UNK	L-10					
Gary Harter	1900 Leininger	Elkhart	293-5240		KP92shallow	L-11					
Baker	1919 Leininger	Elkhart			EP910:30	L-12	4				
Ferret Inc.	1926 Leininger	Elkhart	295-1482		AP9125'	L-13					
Karl Grove	1923 Leininger	Elkhart	294-6056		(KP911:00am	L-14					
Carolyn Yoder	2003 Leininger	Elkhart	295-1937		KP91shallow	L-15			4		
Carolyn Yoder	1929 Leininger	Elkhart	295-1837		KP91shallow	L-16			4		
Carolyn Yoder	1931 Leininger	Elkhart	295-1837		BP91shallow	L-17			3		
Lynn Keller	1928 Leininger	Elkhart	293-9629		KP91UNK	L-18			4		
Howards Auto Service	2000 Leininger	Elkhart	293-4011		EP91	L-19	Trace	Trace	5		
Cheryl Dare	2017 Leininger	Elkhart	293-9857		KP91	L-20	35	48	1		
Rochy Huffman(LL)	2013 Leininger	Elkhart	293-6288		KP912:35pm	L-21	29		5		
Timberg	2023 Leininger	Elkhart			WP91	L-22	5	32	4		
Walter Diller	2027 Leininger	Elkhart	293-3072		KP91shallow	L-23	7	PBNQ	4		
Miller	2030 Leininger	Elkhart			EP91:35pm	L-24	15	166	2		5
Linda's Cafe	2320 Nappanee	Elkhart	293-5711		KP91:50pm	L-25	7-10	98-110	5	3	
Mr. P. Mishler	1807 Borneman	Elkhart			OP92:20pm	L-26		Trace			
G.W Smith	2317 18th	Elkhart	293-1731		WP92:35	L-27					
	1813 Boreman	Elkhart			WP99:30	L-28	4	40			
Dixie Snyder	1810 Borneman	Elkhart	293-7488		BS99:30 am	L-29		18			
Valley Machine Produc	1840 Borneman	Elkhart	294-2617		P99	L-30		2			
Wesley Rogers(LL)	1839 Borneman	Elkhart	1-255-583		ES99:45 am	L-31					
Shuster Sheet Metal	1900 Boreman	Elkhart	293-4802		BS910:00 a.	L-32					
Joann's Restaurant	1915 Borneman	Elkhart	293-1915		BP910:05 a.	L-33					
	1910 Borneman	Elkhart			ES910:15 a.	L-34		2			
Sandy Smith	1935 Borneman	Elkhart			P910:25 a.	L-35		TRACE			
	1932 Borneman	Elkhart			none taken	L-36					
	1938 Borneman	Elkhart			ES910:35 a.	L-37					
Jess Shaffner	2015 Borneman	Elkhart	293-1189		WP910:45 a.	L-38	2				
Charles Weber (LL)	2000 Borneman	Elkhart	293-1813		WS911:00 a.	L-39					
Wanda Hood	2033 Borneman	Elkhart	293-0922		EP911:05 a.	L-40	16	95	5		2
Charles Weber	2016 Borneman	Elkhart	293-1813		BS910:50 a.	L-41		7			
Martha Burnette (LL)	2035 Borneman	Elkhart	293-6472		SS911:10 a.	L-42	2	94	4	4	Tra
Greg Sotebeer	1817 Markle	Elkhart	295-4249		BP912:00 p.	L-43	10				
Claude Donaldson	1806 Markle	Elkhart	294-1002		AS911:20 a.	L-44	17				
	1810 Markle	Elkhart			SP912:15 p.	L-45	4				
Nina McNutt	1812 Markle	Elkhart	295-8980		KP912:25 p.	L-46		4			
	1819 Markle	Elkhart			WS912:45 p.	L-47		15			
Gilbert Grove	2220 19th Street	Elkhart	293-0231		BS91:00 p.	L-48		15			
	1918 Markle	Elkhart	294-3146		KP91:05 p.	L-49		10			
Thunander Corp.	1923 Markle	Elkhart	295-4131		S91:20 p.	L-50	2	12	3		
Merle Stouder	2004 Markle	Elkhart	293-0468		WP9130 feet	L-51					
Merle Stouder	2006 Markle	Elkhart	293-0468		EP911:25 a.	L-52					
Dale Laws	2011 Markle	Elkhart	293-5028		KP911:45 a.	L-53			5		
Jeffries Trucking/La	1800 Fieldhouse	Elkhart	294-2939		?P91:45 p.	L-54		4			
James Leers	1812 Fieldhouse	Elkhart	294-8693		KP92:00 p.	L-55	11	1			
Cullip Tool & Die	1900 Fieldhouse	Elkhart	293-8251		BP9225-30 feet	L-56		28	3	3	
Walerko Tool & Engine	1935 Lusher	Elkhart			BS910:30 a.	L-57	109	2368	7	214	
Elkhart Hinge	1839 Lusher	Elkhart	293-2841		KP911:45 a.	L-58	13	2			
William Leers	1813 Lusher	Elkhart	294-4023		KS99:50 a.	L-59	6	1			

ELKHART COUNTY HEALTH DEPARTMENT
Investigation Report Form

Nature of Investigation: Gasoline and Chemical Spill into St. Joseph River in the near vicinity of the Indiana and Franklin Street intersection.

Name/Address:

Date: On-going since 1983 Environmentalist: R.T. Brown

Findings: After considerable efforts were made to contact a source(s) which included having two underground tanks removed from the abandoned station near the river bank, the EPA using Coast Guard Funds arrived on the scene the week of October 9, 1984. Consulting enginners from ATEC Associates, Indianapolis (contact person Karl Suter), EPA Emergency Spill Response Team (Dr. George Madany, On-Scene Coordinator), EPA Technical Assistance Team (TAT) reprentative Karl Schultz and later Jeff Stofferahn), Elkhart City Rep. (Dave Bates - Pre-treatment Director), Elkhart Fire Department (John Walker & Tony Johnson), and ECHD (R. Brown) met to discuss the problem on Tuesday 10/8/84 in the ECHD office. Phone conversations with ISBH MArty Risch during this meeting determined that gasoline was not the only substance being dealt with. Indications were that TCE and others also present at well above acceptable limits. Results in writing would be forthcoming. Discussion ensued as a result of new findings in which ATEC commented that they were hired to "look only for gasoline source and not any other source". Dr. Madany mentioned that Coast Guard Funds could only be expended for gasoline. R. Brown mentioned that samples were taken at the same location which seemed to indicate that the source(s) may be the same. It was urged that both problems be solved simultaneously. Dr. Madany advised R. Brown that perhaps the ISBH should request in writing that the EPA release Superfund monies to assist in the other problem. R. Brown placed a call to ISBH M. Risch to request such and was told such would be done immediately. Further discussion involved methods of locating the extent of contamination and

(continued)

10/26/84 continued)- contributer of gasoline. Water samples taken at Moore and Davenport residences. Appropriate warnings to be delivered by ECHD if appropriate. Possibility of excavation of area discussed - questionable. ATEC will write remedial plan. TAT feels levels of TCE, etc. do not warrant their involvement and will advise EPA of such. ATEC will ONLY look for gasoline under 311 Coast Guard funding. ATEC not expected back in area. All communication to be made through EPA George Madany. TAT doubtful that they too will be back. Fire Department will continue inspections of nearby facilities as concern for explosion still exists. Discussion of erecting boom on river to trap material - fire department objects due to concntration of fumes when source not as yet found. ATEC will also be looking at degradation of product found to determine "freshness" of the gasoline. Doubtful that the presence of solvents will be pursued. Preliminary soil boring results attached.

11/30/84 EPA T.A.T. advises of test results (attached). Results questionable due to concentrations found. ATEC believes error in lab used by EPA. Very high concentration of VOCs in sanitary sewer at Franklin and Indiana - 116,000ppb!! Both Moore and Davenport homes near or below SNARLs. Letters sent to them both on 12/5. EPA will be looking at VOC and ATEC will concentrate on gasoline as per their earlier comments re: funding sources. Will await ATEC results.

12/10/84 ATEC results arrived today. 9,100,000ppb gasoline found in monitor well #6 in gravel parking lot owned by McGlinchey Promotions!! 19,000ppb gasoline found in monitor well #1 in same lot. 6000ppb found in MW#7 on Red - D - Mart property. This still suggests that source is localized and is not the station above. All other MWs seem ok - less than detectable limits. No SNARL as such listed. No homes or business private wells affected as yet. No gasoline constituents found in Moore or Davenport tests. Still awaiting ATEC and TAT concluding reports.

12/14/84 ATEC report received. Possible remedial actions include: 1. erect boom on river to trap product; 2. install pumping system at MW#6 to pump free product out of ground; 3. do nothing - wait for leach out. Option #3 apparently to be utilized. Not cost effective to do other two. Problem seems too localized to warrant further action.

1/2/85 Resampled MW#6 - no product found. Other wells frozen - unable to sample. MW#1 also sampled - nothing. River at flood stage - no sign of product. EPA George Madany calls to inform that EPA will pay to hook Moore and Davenport residences to city water if they accept the offer. Also suggested that the boom erection alternative be utilized. I informed him this did not seem to be appropriate in light of the very high water level and the fact that no product was found in MW#6. He agreed. Seems that once the ATEC contract is closed, it cannot be reopened. Therefore, this seems our last chance to request any action be taken. I asked that a metal detector be utilized to locate possible additional tanks, as well as once and for all clarify what tank pressure test is acceptable and inform MDK of such.

1/3/85 EPA Steve Browning in area for other reasons. Suggested that the sub-contractors (Shriner & Sons) being used at the SR19/CR20 site be used for these two residences. He asked for test results from I&F area and stated Madany had no basis to make such an offer to hook to city water as these levels do not exceed SNARLs. He indicated that EPA would not follow through on their offer. I urged him to reconsider as I had already told the residences and had their approval as I was told to do by Madany. Informed Browning that this department would not be put in the middle and that EPA should honor their offer or face the risk of poor PR. He said he would discuss the situation with his superiors and get back to us.

Reinvestigation(s)

Date: 10/9/84 (cont) source(s) of same. ATEC is equiped with a drill apparatus and will proceed to dig as many wells as needed to find problem. Fire department officials again expressed concern over fume concentrations and fire/explosion potential. ECHD requested that water samles from any homes in the area be tested by ATEC. This was agreed to. (Wells only). It was determined through the city enginners office that only the Moore residence (1606 Indiana) and the Davenport residence (1610 Indiana) were on private wells in the area. These individuals were warned by letter from the ECHD in August 1983 to hook onto city water due to the presence of TCE in both wells. This advice was not taken.

DATE: 10/12/84 - To date 10 wells have been drilled and are indicated on the attached blue print. Only four wells showed contamination. The worst sample was obtained in the gravel parking lot owned byMcGlinchy Promotion Agency. This core sample showed grose contamination. An additional well placed on the corner of the gravel lot near the agency building also showed contamination. Two wells placed between the pumps and tanks of the Red-D-Mart and the Road(Franklin) also showed contamination. A well placed behind the tanks removed from the abandoned station showed minimal to no contamination. Core sample and other data is tc be analyzed the week of 10/15 before further direction can be given. It appears that the area is rather localized and the possibility of a sewer discharge/leak has not as yet been ruled out. Fire department officials indicate that the possibility of explosion is great during peak flow times. (from monitoring instruments)

DATE: 10/26/84 - EPA TAT and ATEC in town today and yesterday to take sewer and monitor well samples. Joint meeting held with fire department and city engineer's office to share data. Preliminary results of soil borings at monitoring wells indicate problem is isolated to gravel lot adjacent to and owned by Mc Glinchy Ad Agency. Possibility of sewer involvement remote at this time. Red-D-Mart ruled out as

(continued on reverse)

1/8/85 - Spoke with Moores in person concerning EPA's taking back their offer to provide city water. Dr. Madany in error - he could notauthorize Superfund money be spent when levels did not exceed SNARLs in private wells where water is consumed. Wrote letter to Dr. Madany urging EPA to follow through on offer on 1/4.

1/10/85 Spoke to Oletta Davenport today in person to explain situation. Seems situation is understood.

3/21/85 USED PLEXIGLASS BAILER ON ALL WELLS — NO PRODUCT FOUND IN ANY WELL. THREE LOCKS BROKEN — TWO JAMMED CLOSED ONE (#3) SHEARED OFF AS WELL AS TOP PLATE. ALGAE (?) CONTENT EXTREMELY HIGH IN #3 & #2.

GASOLINE DISCHARGE INTO ST. JOSEPH RIVER
INTERSECTION OF WEST FRANKLIN STREET
AND INDIANA AVENUE
ELKHART, INDIANA
ATEC PROJECT NUMBER 21-43162

Prepared For:

U.S. EPA 5HR
230 S. DEARBORN STREET
CHICAGO, IL 60604

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Affiliates:
Alexandria, VA
Norfolk, VA

December 17, 1984

U.S. EPA 5HR
230 S. Dearborn Street
Chicago, IL 60604

Attention: Dr. George Madany, Chemical Engineer
Spill Response Section

Re: Gasoline Discharge into St. Joseph River
Intersection of West Franklin Street and
Indiana Avenue
Elkhart, Indiana
ATEC Project Number 21-43162

Dear Sir:

Submitted herewith are three copies of our final report on the above referenced project. The work has been completed in general accordance with our agreement of October 2, 1984.

The report includes a summary of the results of our field exploraion and observation well installation, laboratory analyses of soil and water samples, a discussion of potential sources of contamination and of possible mitigative measures. A number of suggestions for further investigation are also included.

Copies of the report have been sent directly to Mr. Rick Brown of the Elkhart County Health Department and Mr. Dave Bates, City of Elkhart, wastewater pre-treatment coordinator.

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding the enclosed information, or if we can of further assistance, please contact our office.

Very truly yours,

ATEC Associates, Inc.

Karl E. Suter

Karl E. Suter
Geotechnical Engineer

David R Farlow (KES)

David R. Farlow, P.E.
Senior Project Engineer

sn/RPT30:X
Copies: (3) U.S. EPA 5HR

TABLE OF CONTENTS

INVESTIGATION OF GASOLINE DISCHARGE INTO ST. JOSEPH RIVER

Intersection of West Franklin Street and West Indiana Avenue
Elkhart, Indiana
U.S.C.G. Pollution Incident Control Number V-84-411-GM
Contract Number DOT CG 150001
ATEC Project Nmber 21-43162

1.0 INTRODUCTION

In reponse to a request on October 2, 1984 by Dr. George Madany of the U.S. EPA Region V Spill Response Section, ATEC Associates, Inc. has investigated an ongoing discharge of gasoline into the St. Joseph River near the intersection of West Franklin Street and West Indiana Avenue in Elkhart, Indiana. The source of the gasoline was unknown at that time. Work was initiated on the project on October 3, 1984 with funding from the U.S. Coast Guard. The identifying numbers for the project are U.S.C.G. Pollution Incident Control Number V-84-411-GM and Contract Number DOT CG 150001. At the time the project was initiated the Contract Number was DOT CG 140043. This number has since been changed to the one given above.

Project objectives and a scope of work were developed based on several discussions with Dr. Madany, the on-site coordinator (OSC) for the project.

1.1 Objectives

- determine the source of the gasoline seeping into the river;
- recommend remedial action(s) to alleviate the problem.

To achieve these objectives, the following scope of work was implemented.

1.2 Scope of Work

- conduct a literature review of the local geology and hydrology;
- review project history including investigative work previously performed by others;
- identify likely sources of contamination in the area;
- determine the extent of the underground contamination and the groundwater elevation and flow direction by installation of observation wells;
- construct representative subsurface cross-sections;
- perform laboratory analyses on soil and water samples to determine the degree of contamination by petroleum products and the presence of volatile organic compounds;
- summarize information on local utilities and land use;
- collect and perform laboratory analysis on samples from local sewers in an attempt to evaluate an alternate product migration path;
- describe alternatives for remedial action.

Based on these objectives and scope of work, this report is divided into eleven principal sections as outlined below.

1.3 Report Format

Section 1.0 - Introduction

Section 2.0 - Background Information

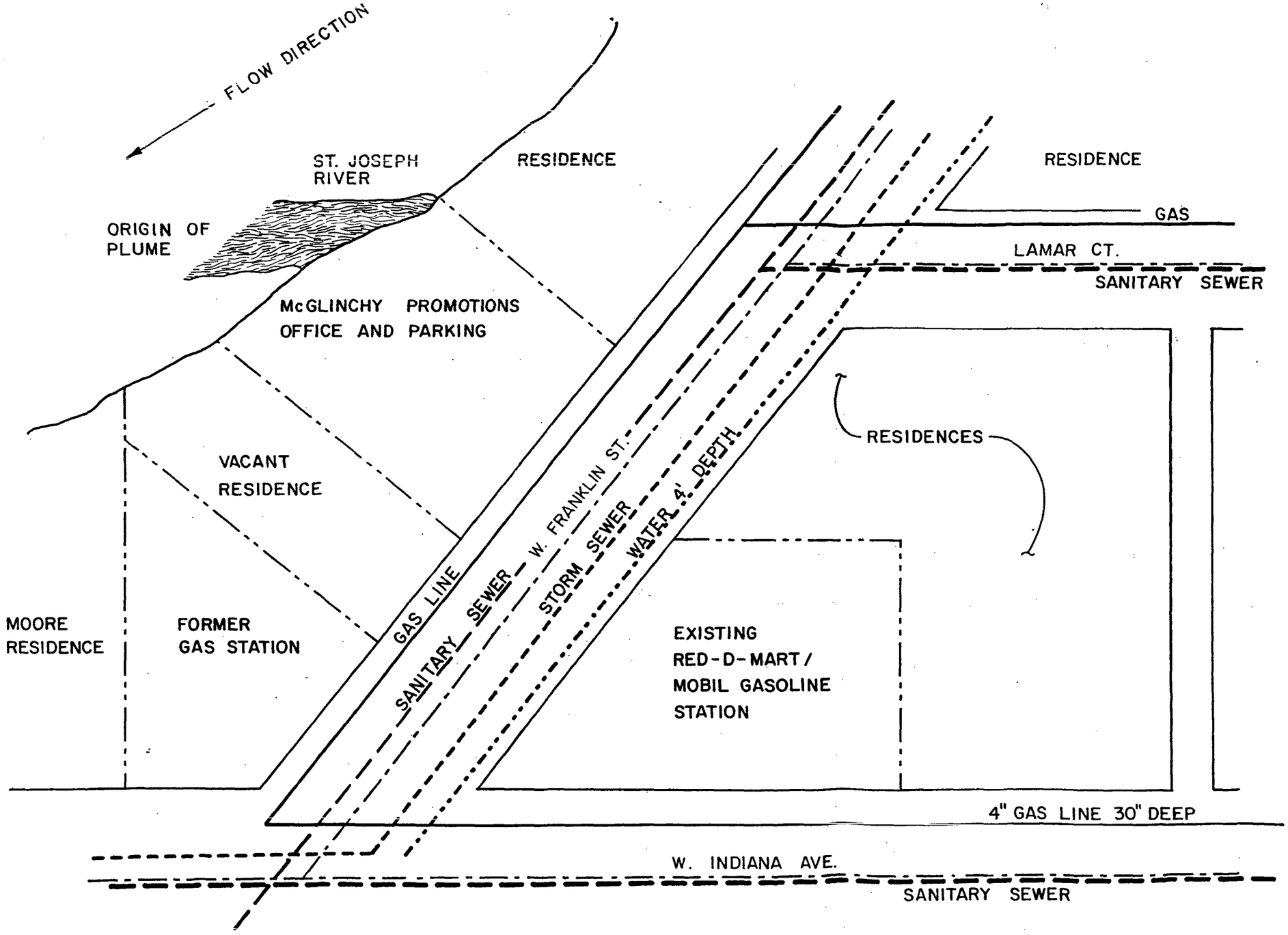
Section 3.0 - Hydrogeologic Setting

2.0 BACKGROUND INFORMATION

The location where gasoline is discharging into the St. Joseph River is adjacent to the intersection of West Franklin Street and West Indiana Avenue in Elkhart, Indiana, as shown in Figure 1. During the field investigations, petroleum products were observed emanating into the river along the bank west of the McGlinchy Promotion Agency property shown in Figure 2.

2.1 Seepage History

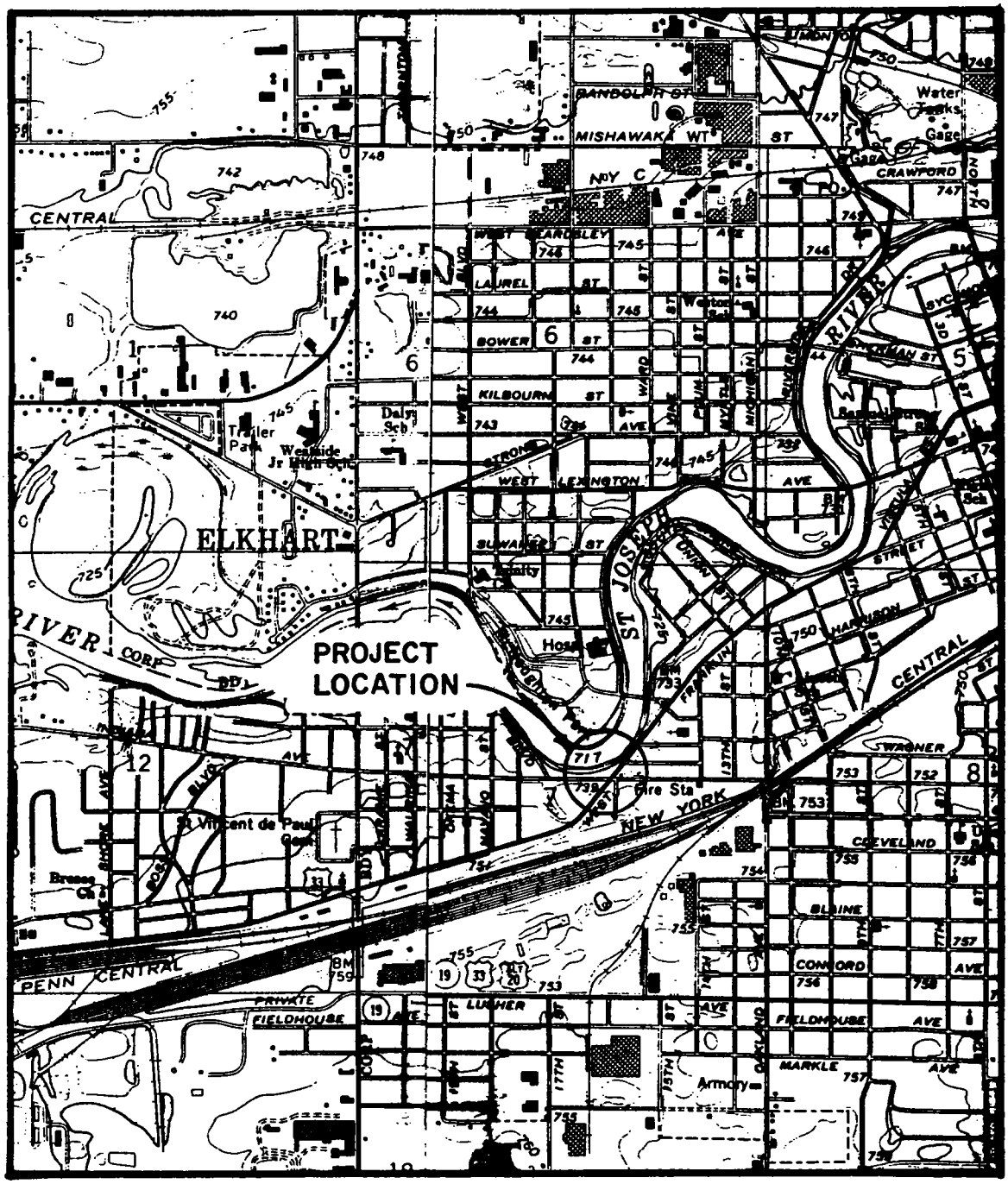
According to local residents and officials from the Elkhart County Health Department, as well as the Elkhart City Fire Department, gasoline has been observed seeping from the riverbank periodically for 1-1/2 to 2 years. This means that product was first noted in the fall of 1982 or the spring of 1983.



UTILITY AND LAND USE PLAN

ATEC ASSOCIATES

FIGURE 2



VICINITY MAP

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The problem was first brought to the attention of public officials by Mr. B. Moore, of 1606 West Indiana Avenue, who lives downstream of the discharge area. The first response was made by the Elkhart County Health Department. The Health Department then contacted the Indiana State Board of Health (ISBH).

ISBH dispatched an emergency spill crew to the site on April 21, 1983. This group made a preliminary investigation and obtained water samples from nearby wells. These samples were later analyzed in the ISBH Laboratory in Indianapolis. The results of these analyses are presented below:

Table 1: Well Water Analysis

Well	TCE (ppb)
Davenport Well	69
Moore Well	38

Note: L. Davenport, 1610 Indiana Avenue, Elkhart
B. Moore, 1606 Indiana Avenue, Elkhart

Subsequently the Elkhart City Fire Department obtained samples of river water within the contaminant plume to check for gasoline content. Barker and Herbert Analytical Laboratories, Inc., tested the samples by gas chromatography and concluded that gasoline was present.

Representatives of the Groundwater Section of the Water Pollution Control Division of ISBH visited the site in June, 1984 and recommended that the gasoline storage tanks be removed from the northeast side of the gas station on the northwest corner of Franklin and Indiana Streets since they were no longer in use.

Shortly after this was completed the flow of gasoline into the river is reported to have intensified for a period of time, then abated, and continued at a low level.

On August 16, 1984, the Elkhart County Health Department obtained two samples from the surface of the St. Joseph's River at the site. One of these samples was from the contaminant plume, the other was an isolated globule of contaminant. Analysis of these samples indicated the presence of gasoline in the sample from the surface plume on the river.

In addition the sample from the plume contained volatile organic compounds as did the other sample. The results of the analyses of the volatiles are included in Table 2 below.

Table 2. River Plume Samples August 16, 1984

	1,1,1 TCE ppb	Methylene Chloride ppb	1,2, Dichloro-ethylene ppb	Dibromo-chlorethane ppb
Contaminant Plume	1.4	11.0	-	
Reddish Globule	91	114	66	185

Late in the summer of 1984 a request was made by the County Health Department to the U.S. EPA for assistance in resolving the matter of the gasoline entering the river. The EPA agreed to investigate utilizing U.S. Coast Guard funds because the gasoline was contaminating a navigable waterway. Dr. George Madany of the U.S. EPA Region V Spill Response Section was assigned as the on-site coordinator (OSC) for the project and on October 2, 1984 he contacted ATEC Associates and requested assistance in conducting the investigation.

2.2 Utility Lines

The utility information contained in this section was obtained by reviewing piping plan drawings, discussions with utility company personnel and by field inspection of the site.

The principal underground utility lines in the area are shown in Figure 2. Gas, water, storm sewer and sanitary sewer lines all run underground at the site and are included in the figure. The main power and telephone lines are overhead. The exact location of the utility lines is not given in the figure. Before any underground work is conducted, the utility companies must be notified to determine the exact location of all lines.

Both storm and sanitary sewer lines run along West Franklin Street. In addition, there is a sanitary sewer that follows Indiana Avenue. At the intersection of Franklin and Indiana the storm sewer along Franklin turns to follow Indiana Street to the west. There are no connections to this sewer south of Bridge Street as it approaches the site. The sanitary sewer which also runs parallel to Franklin Street is 12 in. in diameter. It, however, accepts influent from sanitary lines along Krau Street, Lamar Court and West Indiana Avenue, as well as from the local users along Franklin Street. The sanitary sewer along Indiana Street is 48 in. in diameter and carries effluent from a large number of users.

The fourth sewer in the site vicinity is a combined sewer which runs along Krau Street and intersects sanitary sewers east of the site at Oakland, Fremont, Thomas and Franklin Streets and has as its ending point an overflow that discharges into the St. Joseph's River north of the site.

Water mains follow both Franklin and Indiana Streets adjacent to the site. Only two residences near the site have private water supplies. All other residences and businesses use municipal water.

Gas lines are located along the north side of Lamar Court, the west side of Franklin Street and the north side of Indiana Avenue at the site.

2.3 Adjacent Land use

The utility and land use map (Figure 2) shows the land use in the area adjacent to the location of the gasoline seep. The portion of the river-bank where the product appears to enter the river is directly behind the property owned by McGlinchy Promotions (1584 West Franklin Street).

As the figure indicates, the majority of the site is occupied by private residences. Two gas stations, one no longer in use, occupy the northern corners of the intersection of Franklin Street and Indiana Avenue.

The area outside that which appears in Figure 2 is also principally residential.

3.0 HYDROGEOLOGIC SETTING

The area of investigation is located in the Kankakee Outwash and Lacustrine Plain which is a relatively flat area adjacent to the St. Joseph River. The local surface drainage flows into storm sewers in the developed areas with minor amounts flowing directly into the St. Joseph River.

The project site is located in an area where outwash sand and gravels of the Atherton Formation comprise the surficial material. According to published geologic information this upper unconfined aquifer is approximately 20 to 25 ft thick while the lower confined aquifer thickness approaches 100 ft in the project area. The confining bed ranges from 5 to 10 ft in thickness (WRI 81-53).

The Department of Agriculture, Soil Conservation Service has completed a soil survey of Elkhart County, Indiana. The site is located in the Oshtemo loamy sand soils type with 0-2 percent slopes. This soil which is found along outwash plains of main streams and on knolls and ridges of the uplands, is described as having moderately rapid permeability and slow runoff. The estimated coefficient of permeability, or the rate of downward movement of water, where the soil is saturated, ranges between 2.0 to 20.0 ft/hr and 0.5 to 1.7 ft/hr for depths of 0 to 29 in. and 29 to 60 in., respectively. The permeability of these soils when used as a fill material in excavations or utility trenches may be much higher.

The bedrock in the area is located at approximately El 575 ft above mean sea level or 165 ft below grade and consists of the Ellsworth shale of Upper Devonian-Lower Mississippian Age. The lower portion of this unit is composed of alternating beds of grayish green shale with black shale beds diminishing upward, while the upper portion consists of a grayish green shale with limestone and thinly laminated dolomite lenses.

Published literature identifies two major aquifers present at the site (W.R.I. 81-53). The upper unconfined aquifer is of primary importance in this investigation. The May 1979 groundwater level in this formation measured at approximately around El 720, or a 19 ft depth. A computer groundwater flow model of the area was developed by the U.S.G.S. and published in 1981. The model utilized a calibrated transmissivity of the upper aquifer of 8,000 ft^2/day. A similar calibrated transmissivity of 4,000 ft^2/day was used for the lower, confined aquifer.

Water well data from the Indiana Department of Natural Resources and from B. Moore, a local water well driller, confirmed the published hydrogeologic data. The upper unconfined aquifer was identified along with the lower confined aquifer and confining bed. The records examined indicate that wells range in depth from 26 to 125 ft with the majority of them completed in the upper portion of the confined aquifer. No drawdown was reported for 15 gpm yield over a two-hour pumping period for wells completed in both aquifers.

The majority of the residences and businesses in the vicinity of the site are served by the municipal water supply. As previously stated two identified residences have private wells and are using groundwater. Both wells are completed in the unconfined aquifer.

4.0 SUBSURFACE CONDITIONS

4.1 Soils

According to the USDA Soil Survey of Elkhart County, the project site is located in an area covered by soils of the Oshento series. These soils are generally described as deep excessively drained coarse textured soils found in outwash plains. They have rapid permeability and slow runoff.

The soils sampled during installation of the monitoring wells confirm the description given above, and indicate that the upper 25.5 to 30.0 ft of soil at the site is sand containing varying amounts of silt and gravel. The gradation of the sand varies somewhat, with some samples containing a broad range in particle size from fine to coarse. Other samples contained a more uniform grain-size in the fine to medium range. Very large gravel and some small cobbles were encountered in some of the borings. Below these soils, a silty or clayey sand was encountered. This soil separates the upper and lower aquifers previously mentioned. No effort was made to completely penetrate this strata, but published information (W.R.I. 81-53) indicates that it is 5 to 10 ft thick in the vicinity of this project.

Figure 3 shows the locations of the ten monitoring wells installed and indicates the locations of the generalized subsurface profiles which are included as Figures 4a, 4b and 4c. Figure 5 is a legend which defines the symbols used in Figures 4. It should be noted that in constructing these profiles, the ground surface at the site was assumed horizontal. This is not correct but the difference in surface elevation between any two borings is at most 2 ft and is commonly less than 1 ft. More detailed information on the subsurface conditions is included in Appendix A ("Field Investigation").

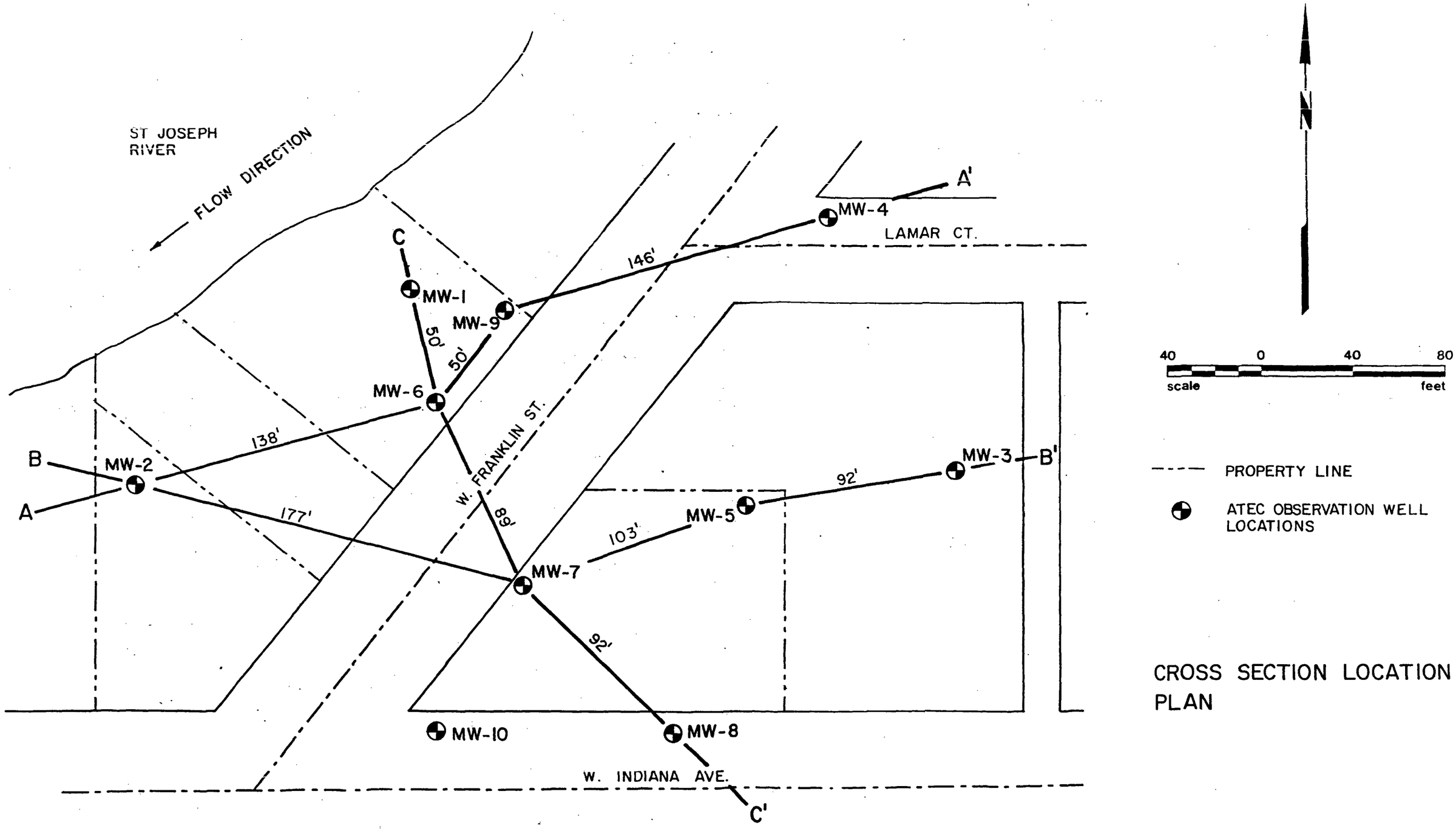
4.2 Groundwater

The profiles in Figures 4a, b, c indicate the depths to groundwater at the project site on October 12, 1984. In addition, Figure 6 shows groundwater contours from the same date. The contours indicate that the groundwater generally flows toward the river. The elevations used are relative elevations based on an assumed datum. Tabulated values of groundwater elevation for the dates October 12, 1984 and October 26, 1984 are included in Table 3.

Table 3: Groundwater Elevations in Observation Wells

	Groundwater Elevation	
Well No.	10-12-84	10-26-84
MW-1	78.0	78.5
MW-2	78.5	78.9
MW-3	82.6	82.8
MW-4	79.8	79.9
MW-5	80.5	80.8
MW-6	79.0	78.8
MW-7	80.4	80.6
MW-8	86.1	86.5
MW-9	78.8	79.1
MW-10	81.1	80.7

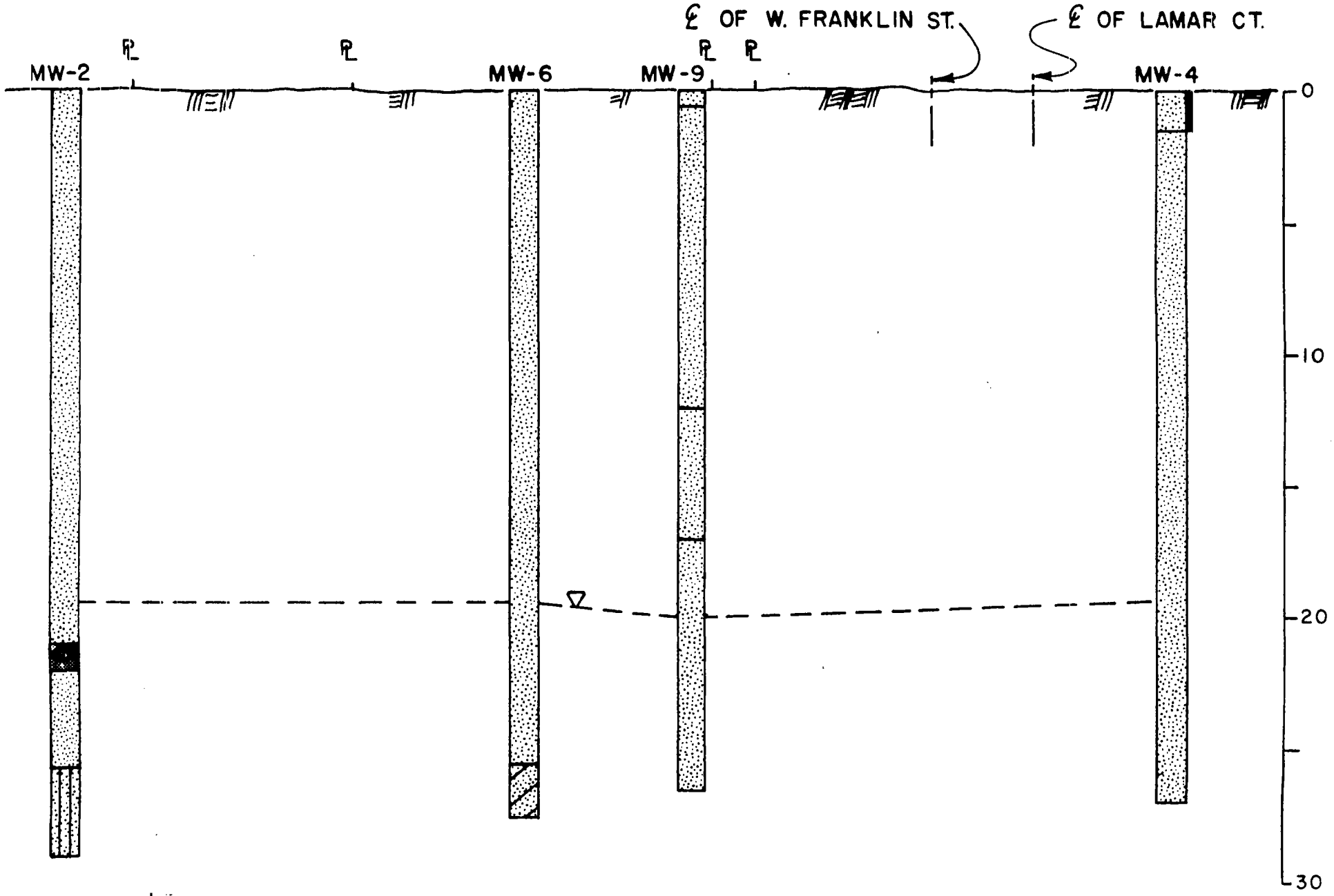
*Groundwater elevations are relative to an assumed datum. See borings logs in Appendix A.



CROSS SECTION LOCATION PLAN

ATEC ASSOCIATES

FIGURE 3



SECTION A-A'

HORIZONTAL SCALE 1"=40'

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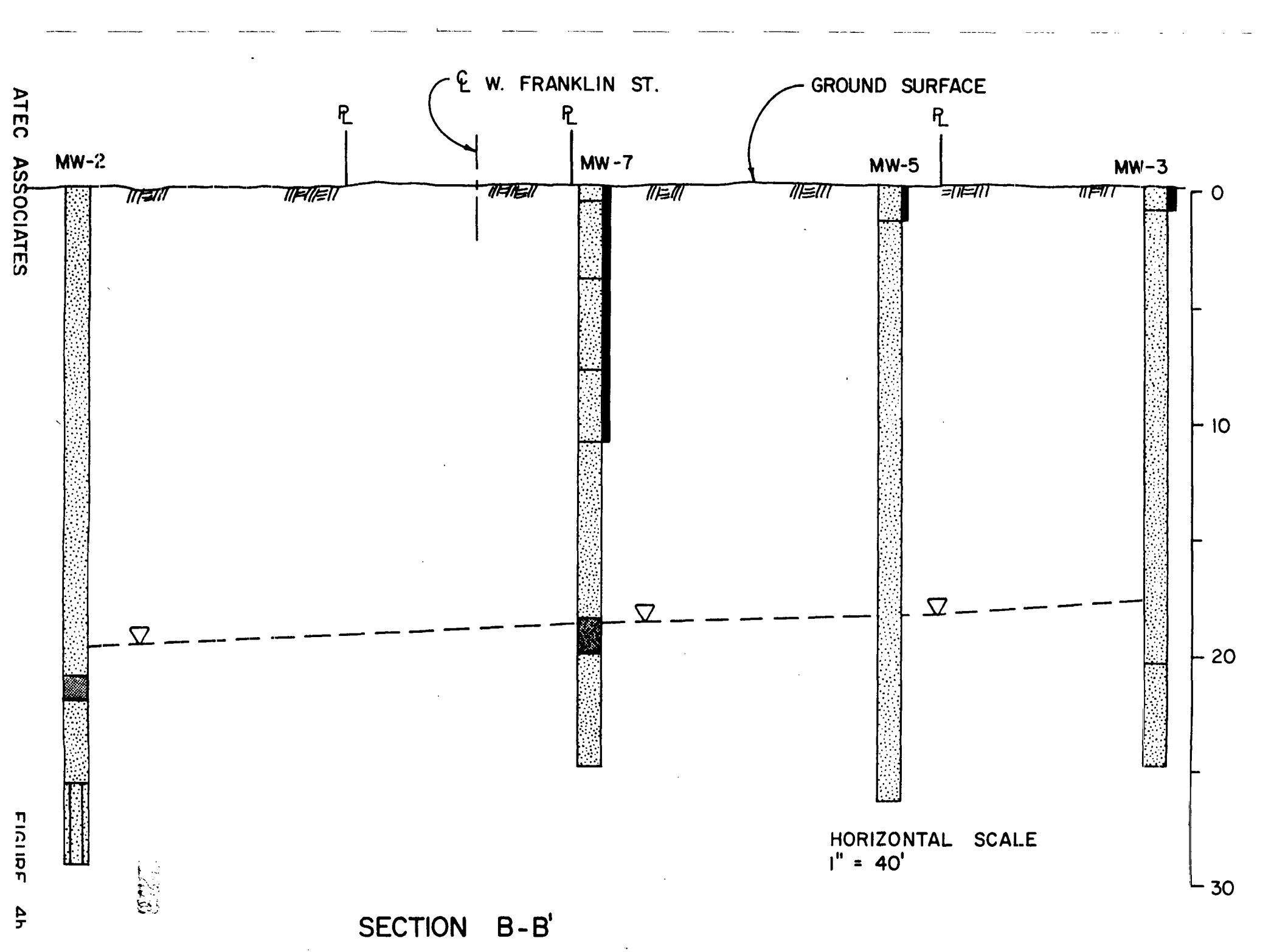
FIGURE 4a



SECTION B-B'

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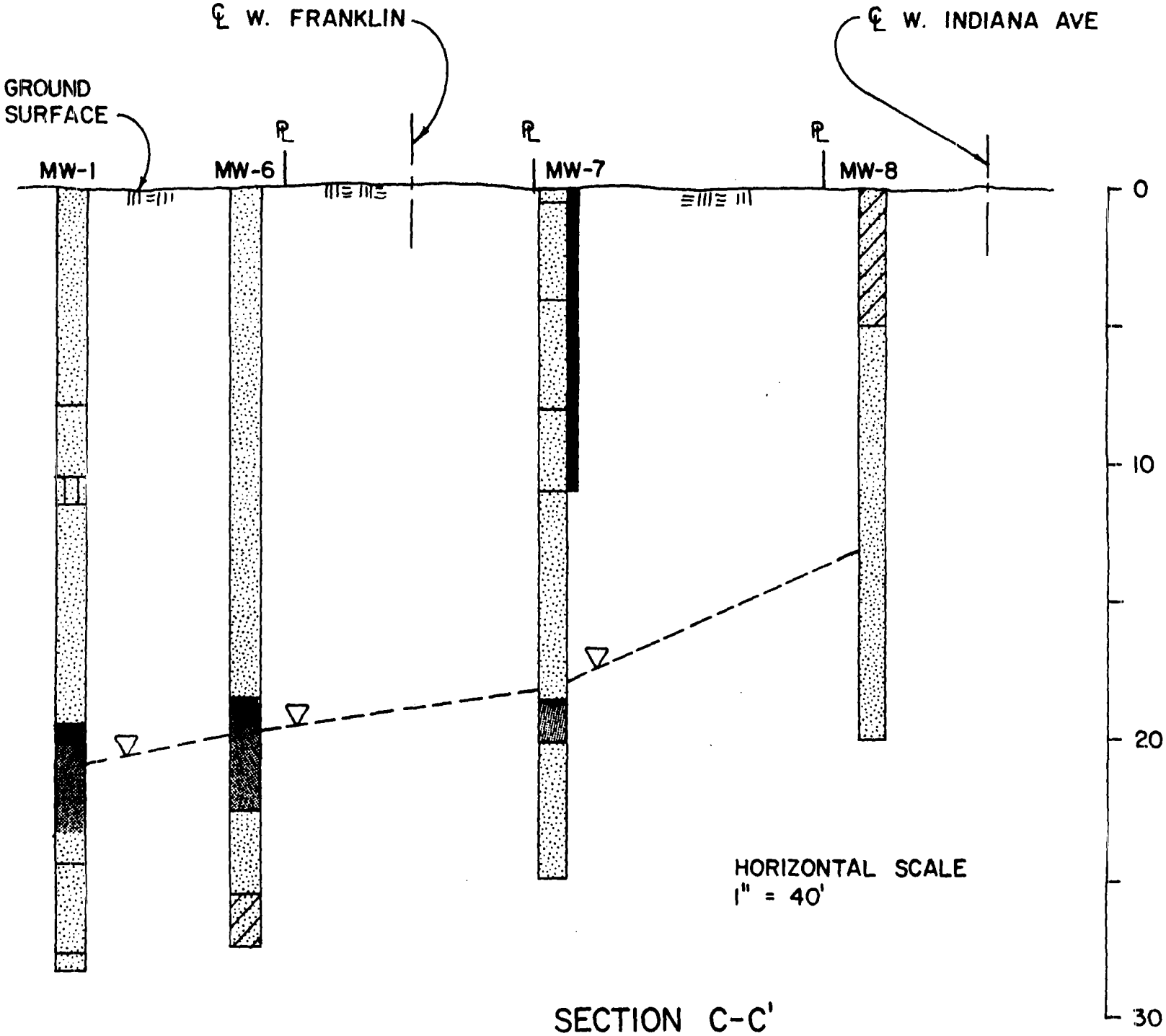
FIGURE 4b



SECTION C-C'

FIGURE 4c

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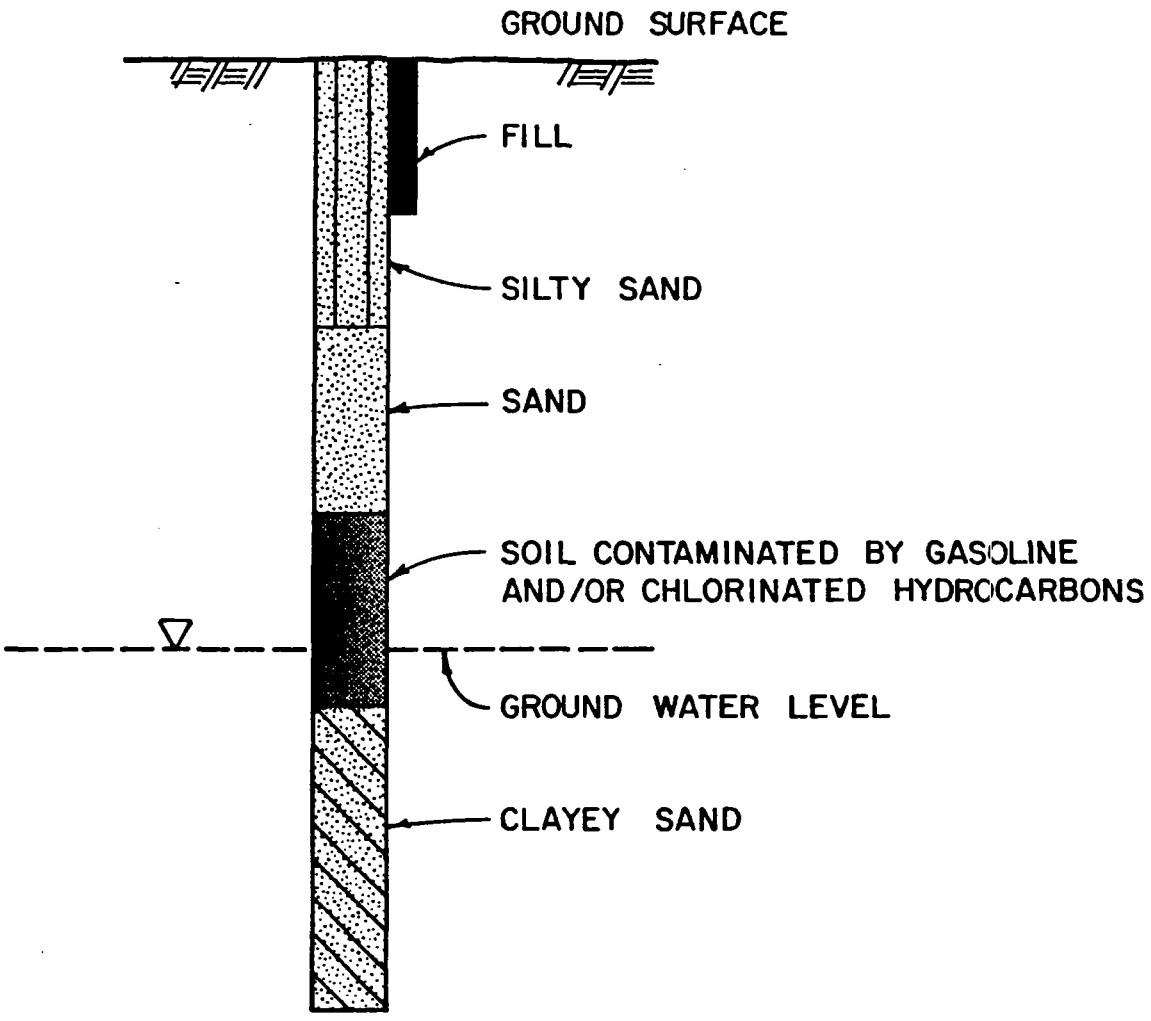

CROSS SECTION
LEGEND

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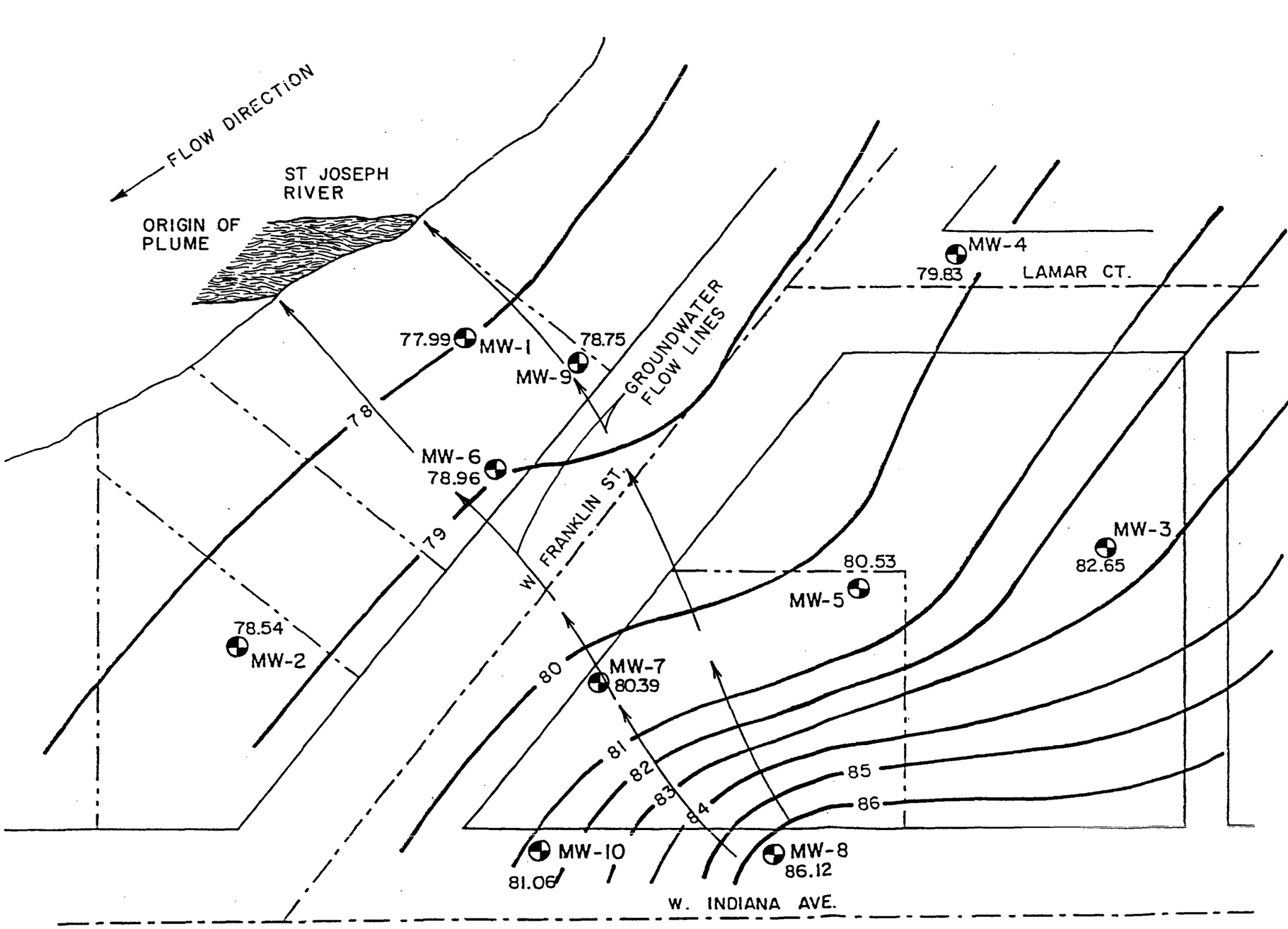
FIGURE 5



SITE AND MONITORING WELL LOCATION PLAN WITH GROUND-WATER CONTOURS

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FIGURE 6

5.0 CONTAMINANT LOCATION AND IDENTIFICATION

Several different types of samples were collected during the course of the study in an attempt to determine the degree of contamination in the subsurface at the site. A brief summary of the findings is included below.

5.1 Observation Well Investigation

Gasoline was noted in the soil samples during drilling at the location of Observation Wells MW-1, MW-6 and the field observations were supported by laboratory test results. No free gasoline was found in the wells at the time of the initial field investigation. A characteristic hydrocarbon sheen was, however, noted on the surface of the river adjacent to the project site. There appeared to be more than one contaminant type seeping into the river. One contaminant was light and spread out quickly into a sheen as gasoline would. The other contaminant, although it floated, appeared to be heavier and more viscous. The actual volume entering the river at the time of the investigations, however, appeared to be modest.

Laboratory analysis did reveal contaminants in addition to gasoline in the soil and groundwater samples obtained during the initial site visit (October 9-12, 1984). These compounds included several volatile organic compounds and were present in concentrations that could pose a health hazard to people drinking this water. Trichloroethylene, chloroform,

methylene chloride and 1-1-1 Trichloroethane were identified and are known carcinogens. The results of these analyses are presented in Tables 4 and 5.

During the second investigation (October 26, 1984), free gasoline product was found on top of the groundwater in observation well MW-6. Water samples from this well and the remaining nine wells were obtained for analysis. The results of the analyses of these samples are also included in Tables 4 and 5.

Since the time of the second field investigation, Rick Brown of the Elkhart County Health Department has sampled the observation wells periodically with a clear, ball valve hydrocarbon sampler provided by ATEC Associates, Inc. The purpose of this continued sampling is to monitor changes in the thickness and location of the gasoline layer above the groundwater at the site. To date, free product has only been found in observation well MW-6. Recent measurements indicate that less than 1 in. of gasoline is pooled on top of the groundwater table.

Table 4A: Summary of Gasoline Content Tests on Soil Samples Taken Between October 9 and October 12, 1984 All Concentrations in Soil Samples Are Given in mg/kg (ppm)

Boring	Sample Depth, ft	Gasoline Content, mg/kg
MW-1	20.0	4000
MW-2	19.0	5
MW-2	24.0	5
MW-6	19.0	1000
MW-7	18.5	5

Table 4B: Summary of Gasoline Content Tests on Water Samples from the Observation Wells

Boring	Date Sampled	Gasoline Content (ppm)
MW-1	10-12-84	.05*
	10-26-84	19
MW-2	10-12-84	5
	10-26-84	5
MW-3	10-26-84	5
MW-4	10-26-84	5
MW-5	10-26-84	5
MW-6	10-12-84	3*
	10-26-84	9100**
MW-7	10-12-84	5
	10-26-84	6.0
MW-8	10-12-84	5
	10-26-84	5
MW-9	10-12-84	5
	10-26-84	5
MW-10	10-12-84	5

*Samples obtained soon after well installation do not accurately indicate the presence of contaminants.

**This value reflects the concentration of gasoline in the water below the "floating" gasoline.

Table 5A: Summary of Volatile Organic Compounds Found in Soil Samples Obtained Between October 9 and October 12, 1984

Note: All concentrations in soil samples are reported in mg/kg (ppm)

Compound	MW-1 18.5' - 20.0'	MW-6 18.5' - 20.0'	MW-7 18.5' - 20.0'
Methylene Chloride	-	-	70
1,2-Dichloroethylene	-	-	-
Chloroform	-	-	2.5
1-1-1 Trichloroethane	-	-	0.6
Trichloroethylene	1.0	-	0.4

Note: Test results can only be considered qualitative because the sampling procedure was not designed for sampling these compounds.

Table 5B: Summary of Volatile Organic Compounds Found in the Water Sample From MW-1 (October 12, 1984)

Compound	Concentration (ppm)
Methylene Chloride	9.80
1,2-Dichloroethylene	0.04
Chloroform	0.15
1-1-1 Trichloroethane	0.15
Trichloroethylene	0.04

Note: Test results can only be considered qualitative because the sampling procedure was not designed for sampling these compounds.

5.2 Sewer Investigation

Samples of the water from storm and sanitary sewers adjacent to the site were obtained during the second site visit (October 26, 1984) and were subsequently analyzed in the laboratory. The results of these analyses are given in Tables 6 and 7. These tables include the results of total organic halogen (TOX) tests run on samples obtained by ATEC personnel along with the results of other analyses conducted on samples obtained by Technical Assistance Team (TAT) personnel.

Table 6. Summary of TOX Tests Run On Samples from Storm and Sanitary Sewers Obtained October 26, 1984

Sample Origin	TOX (ppm)
Combined sewer at intersection of Franklin and Indiana	0.05
Sanitary sewer along Indiana at corner of Franklin and Indiana	0.15

5.3 Domestic Well Water Investigation

Two local wells were sampled by members of the EPA Technical Assistance Team in order to determine whether these wells had been contaminated by the organic compounds previously mentioned. The results of these tests are also included in Table 7.

Table 7: Summary of Volatile Organic Compounds Found in Water Samples Obtained by EPA TAT Members (October 25, 1984)

Station No.	Station Location	DCE (ppb)	TCE (ppb)	PCE (ppb)	Other Volatile Organic Compounds Detected
S31	Indiana & Franklin E. side middle of Ind. Sanitary	ND	135	22700	1,1,1-Trichloroethane 116000; Toluene 26600 Detection Limit = 100 ppb
S32	Indiana & Oakland Sanitary Sewer	ND	ND	ND	Methylene Chloride 51.5 ppb; 1,1,1-Trichloroethane 47.8 ppb
S33	Franklin & Lemar Sanitary Sewer	ND	ND	7.2	Chlorofrom 2.6 ppb; Toluene 5.2 ppb; Bromodichloromethane 2.1 ppb; 1,1,1-Trichloroethane 17.2 ppb
S34	Franklin & Lemar Storm Sewer	20.1	51.6	54.6	1,1-Dichloroethane 10.2 ppb; 1,1,1-Trichloroethane 21.5 ppb; Toluene 2.2 ppb. Many other unidentified peaks.
S35	Moore Residence Well	1.6	7.3	ND	1,1-CL(2) Ethane 13.2 ppb; 1,1,1-CL(3) Ethane 2.4 ppb; Toluene 1.0 ppb.
S36	Davenport Residence Well	3.5	19.3	ND	1,1-Dichloroethane 50.7 ppb; 1,1,1-Trichloroethane 7.5 ppb.
S37	Indiana & Franklin Storm Sewer	25.5	35.1	1.6	1,1-Dichloroethane 1.2 ppb; Toluene 2.8 ppb; 1,1,1-Trichloroethane 9.4 ppb.
S38	Indiana & Franklin Sanitary Sewer	1.4	5.4	30.8	1,1-Dichloroethane 1.9 ppb; Chloroform 10.1 ppb; Toluene 8.8 ppb 1,1,1-Trichloroethane 104 ppb

Note: Detection Level 1 ppb unless otherwise noted

6.0 CONTAMINANT SOURCE IDENTIFICATION

The principal focus of this study is contamination of the St. Joseph River by gasoline. The other contaminants are discussed because they were encountered and because they pose a potential health hazard. The source of these compounds is considered only as it relates to the source of the gasoline.

The presence of both gasoline and volatile organic compounds at the site increases the probability that more than one source is responsible for the contamination. Solvents and manufacturing intermediates tend to indicate an industrial source, while the gasoline tends to indicate a local source such as one of the two gas stations previously mentioned. The residential nature of the neighborhood dictates that any "industrial" source be located several city blocks from the site. Contaminants from such a source could possibly reach the site by flowing with the groundwater, in a sewer, or along a sewer or other utility in the backfill which generally has a much higher hydraulic conductivity than the surrounding soil. Contaminants from a local source could easily flow with the groundwater or along a buried conduit to the site.

6.1 Local Sources

It is possible that both the gasoline and the volatile organic compounds are from local sources. The potential for gasoline leakage from the two gas stations is apparent. With regard to contaminants other than gasoline, most of the organic compounds found are used as degreasers, paint

strippers or general solvents. These products could have been used in the past at either of the gas stations, or possibly by a local resident.

The gas station at the northwest corner of the intersection of Franklin and Indiana Streets is no longer in operation and gasoline tanks from the front of the station have been removed. The gasoline could have come from one of these tanks since they reportedly contained gasoline when they were excavated. If the gasoline found in observation well MW-6 and on the river came from this gas station, it for some unknown reason did not follow the most direct path to the river. An observation well (MW-2) directly between the tank pit from which the gasoline tanks were removed at this gas station and the river is not contaminated with gasoline. The gasoline would have to have flowed perpendicularly to the direction of local groundwater flow in order to enter the river at the known entry location. This can be interpreted from the groundwater potential and flow lines shown in Figure 6. Such behavior might be explained by the presence of underground utility trenches which can create preferred flow paths. The possibility also exists that there are, as yet undetected, tanks under the station property which are the source of the gasoline.

On the northeast corner of the intersecton of Franklin and Indiana Streets is a Red-D-Mart, which is a combination gas station and convenience store operated by MDK Corporation. This station is directly upgradient of the area of known contamination. In response to prior questions about being a possible source of the gasoline the operator had

the service station's tanks pressure tested using the air pressure technique at a pressure of 4 psi. The results of the pressure tests did not indicate any leakage. Four observation wells were installed on the property of this gas station. Of these four wells, gasoline has only been found in the samples obtained from observation well MW-7. The soil samples obtained during the initial investigation contained 0.5 ppm gasoline, and gasoline was not detected in the water sample taken at that time. The water sample from MW-7 obtained during the second field investigation (October 26, 1984) contained 6 ppm gasoline. This is a relatively modest amount of gasoline and is probably typical of many service stations.

In spite of this, the MDK gas station property is one of two likely sources of the gasoline from a groundwater hydrology viewpoint. The groundwater contours and flow lines shown in Figure 6 indicate the general path that a contaminant flowing with the groundwater would follow in order to emanate from the riverbank at the known location. This path crosses the McGlinchy promotions parking area, the street with its buried sewer, natural gas and water lines, and the MDK gas station property. A spill of gasoline from either the sewer or the MDK gas station would probably follow the path indicated and result in a problem similar to the existing one.

It is possible that there are old tanks under the MDK property which are the source of the gasoline. This would explain the positive pressure

test results on the active tanks. One such tank was found as part of this investigation and is located in the southwest corner of the gas station property. The available informaion does not disclose whether or not this tank was the source of the gasoline, however, it is presently empty.

6.2 Distant Sources

Distant sources are even more difficult to identify. Potential candidates can be determined, but verficiation of the product migration path is complicated at best. The likelihood that the gasoline is from a distant source and is traveling in a broad plume in the groundwater is remote. The observation wells installed away from the points of known contamination do not indicate the passage of gasoline in this manner. Neither floating gasoline, nor water contaminated by gasoline was encountered in these wells. The samples obtained from the storm and sanitary sewers along Franklin Street did not contain detectable quantities of gasoline when tested. The possibility exists, however, that the gasoline may have traveled in the sewer, in the backfill alongside the sewer, or along some other conduit because of higher permeability of the backfill material surrounding buried conduits.

As was noted before, it is possible that the volatile organic compounds entered the subsurface locally. An indication that this may not be the case is that most of the compounds identified in the soil and water samples from the observation wells and the river were also found in the

TAT analyses of sewer samples from the area. While this does not provide conclusive evidence that the sewer is the source of these contaminants, the sewer is the most likely source of the volatile organic compounds. More laboratory analyses of water samples from the existing observation wells could help verify this conclusion.

There is an S-curve in the groundwater potential contours that run along Franklin Street in Figure 6. It is possible that this curve indicates a leak from a sewer which is contributing water to the groundwater system. A similar feature can be noted adjacent to Boring MW-8 in this figure. This is not conclusive evidence of such a leak but it does present the possibility.

The areal extent of the contamination by the volatile organics cannot be determined with the present data. Since the focus of this study was on the problem of gasoline seeping into the St. Joseph River, few tests were run to detect other compounds. Now that the presence of these contaminants is known, however, an effort should at least be made to assure the quality of drinking water from private wells in the area and/or to find alternative sources of potable water for the owners of these wells.

Based on the available field and laboratory data, the most likely sources of the gasoline are the local sources. There is still a question as to whether the gasoline is coming from an active source, an intermittent

source or whether the source is no longer contributing, and the groundwater is in the process of flushing out the remaining floating gasoline from the soil. The observation wells that are in place can be an aid in resolving this question. Product quantities and migration paths can be monitored by checking these wells periodically with a hydrocarbon sampler. However, to better evaluate the quantity of product in the ground, and possibly ascertain the source, an additional three to five observation wells should be installed to the south and east of observation well MW-6. The quantity of free product present in the ground does not appear to be large, but more information will be required in order to confirm this.

7.0 POSSIBLE REMEDIAL MEASURES

Clean-up of hydrocarbons from the surface of the groundwater can be attempted in several different ways. Generally speaking the methods rely on the fact that light hydrocarbons such as gasoline will "float" on top of the groundwater with only limited mixing. The applicability of these techniques in the present situation is discussed below.

At the location of MW-6 free product (floating gasoline) was found on the surface of the groundwater. This is described as free product because when gasoline enters the soil groundwater system, a certain amount of gasoline coats the soil particles and becomes "bound". Past experience with gasoline spill clean ups indicates that this "bound" product is not recoverable by conventional extraction techniques. Gasoline recovery

could be attemped with a system consisting of a well with two pumps adjacent to MW-6. A two pump well system is the most efficient method for removing free product, but it relies on a lowering of the groundwater table at the well in order to create a condition where the gasoline will flow toward the well. With a thin layer, such as the one present at this site, much of the gasoline may coat the soil particles in the zone of this "drawdown" and become unavailable for recovery. This can limit the amount of gasoline that is recovered. Some of it will inevitably be left behind in the soil.

Another common hydrocarbon recovery technique is to excavate a trench to intercept the product, and then skim it off the surface of the fluid standing in the trench. At this site constructing such a trench at the top of the riverbank would probably not be practical because of the depths of excavation required in a granular soil, but the river, in effect, forms a natural trench. If a floating boom were used to contain the gasoline as it seeps out of the river bank, it could then be: 1) skimmed off and pumped to a storage container, 2) absorbed by a boom that is oliophilic (attracts oil) and hydrophobic (repels water), 3) bound up using a commercial product such as "Imbiber Beads" that are currently available on the market.

The products described in Items 2 and 3 are both readily available commercially. The absorbent booms have the advantage that they are

relatively inexpensive and to some extent re-usable. The absorbent beads which come in a blanket or mat have the advantage that they chemically bind the hydrocarbons, including chlorinated hydrocarbons.

This type of system can be enhanced by aquifer recharge upgradient of the gasoline layer. This recharging can be done with a well or leaching bed, which would help flush a higher volume of water through the soil.

For a more protected system of this type, a shallow trench could be excavated in the bank adjacent to the river. The same gasoline retrieval methods already described could be used in the trench. It is likely that excavation of such a trench would be difficult due to the steepness of the riverbank and the number of trees growing on it.

A third alternative is to do nothing. The information which is presently available indicates that the gasoline is not contaminating a drinking water supply and is of a limited volume. However, another primary risk is from the accumulation of gasoline fumes in basements and sewers. This can (and should) be checked periodically by using a hydrocarbon detector in the affected area. If the source of the gasoline is no longer contributing to the problem, the gasoline will continue to be flushed into the river as it has been over the past year and a half. The observation wells that are in-place can be used to monitor product thickness and to decide whether the gasoline is actually leaving the site.

Given the available information including the apparent decrease in the severity of the problem over time, the third alternative (do nothing) may be a viable option. There will, no doubt, continue to be seepage of gasoline into the river at a relatively low rate which will fluctuate with rainfall events and other occurrences which affect groundwater flow. The discharge should, however, continue to diminish with time as the gasoline is flushed from the ground into the river.

8.0 CONCLUSIONS

1. A thin layer of gasoline is resting on top of the water table at the site, and is likely of rather limited extent since it appears only at the location of observation well MW-6 presently.

2. Gasoline is present in the capillary zone above the groundwater table over a larger area than that where free gasoline actually has been observed.

3. Fluctuations in the groundwater level at the site have been flushing the gasoline into the St. Joseph River and contaminating some of the soil on the river bank.

4. In addition to gasoline, volatile organic compounds are present in the soil and groundwater in the project area. Methylene chloride is the compound present in the highest concentrations.

5. The local sources are considered the most likely origin of the gasoline.

6. Additional observation with the existing wells should aid in the determination of whether or not the source of the gasoline is continuing to contribute to the problem.

7. The chlorinated hydrocarbons pose a health hazard to people drinking untreated water from local wells. Since municipal water is available, the few residents who use local well water should be strongly encouraged to get connected to the municipal water supply system.

8. There are several possible courses of action that could be followed to address the gasoline problem at the site. If action is to be taken, a temporary measure could include using an absorbent boom and/or a product that will chemically bind the gasoline at the point of emanation into the river. As was mentioned, a binding agent with the proper characteristics will also bind many volatile organic compounds. An extension of this system would be to construct a ditch to intercept the gasoline.

It may be that the condition of the site has progressed to the point that only limited seepage of gasoline will continue, and the do nothing alternative is appropriate.

9. This study has raised some questions which might be answered by additional investigation. A complete survey of both gas station properties and the McGlinchy Promotion Agency property with a metal detector could help disclose underground tanks. Additional observation wells could be installed to better delineate the contaminated area and aid in source identification. Filming the inside of the sewers adjacent to the site with a video camera would help locate any possible leaks in the sewers. If a recent pressure test has not been conducted in accordance with the National Fire Protection Association - Bulletin No. 329, one should be performed to eliminate these tanks from consideration. Bulletin No. 329 indicates that pressure tests with air are unreliable.

9.0 LIMITATIONS OF STUDY

It should be noted that all subsurface investigations are inherently limited in the sense that recommendations are developed from information obtained in test borings and observation wells which depict subsurface conditions only at specific locations and at the particular time designated. Conclusions must then be based on extrapolation of this information to locations where data is unavailable. Subsurface conditions at other locations may differ from conditions present at the boring locations. Also the passage of time may result in a change in the subsurface conditions at these boring locations. As a consequence, this type of investigation cannot eliminate all uncertainty in the subsurface conditions. It can however provide the basis for rational engineering judgements.

LITERATURE CITED

Hydrologic and Chemical Evaluation of the Ground-Water Resources of Northwest Elkhart County, Indiana by Thomas E. Imbrigiotta and Angel Martin, Jr., USGS. Geological Survey Water-Resources Investigations 81-53. October 1981

Soil Survey of Elkhart County, Indiana. United States Department of Agriculture Soil Conservation Service. April 1974

APPENDIX A

Field Investigation

Boring Logs

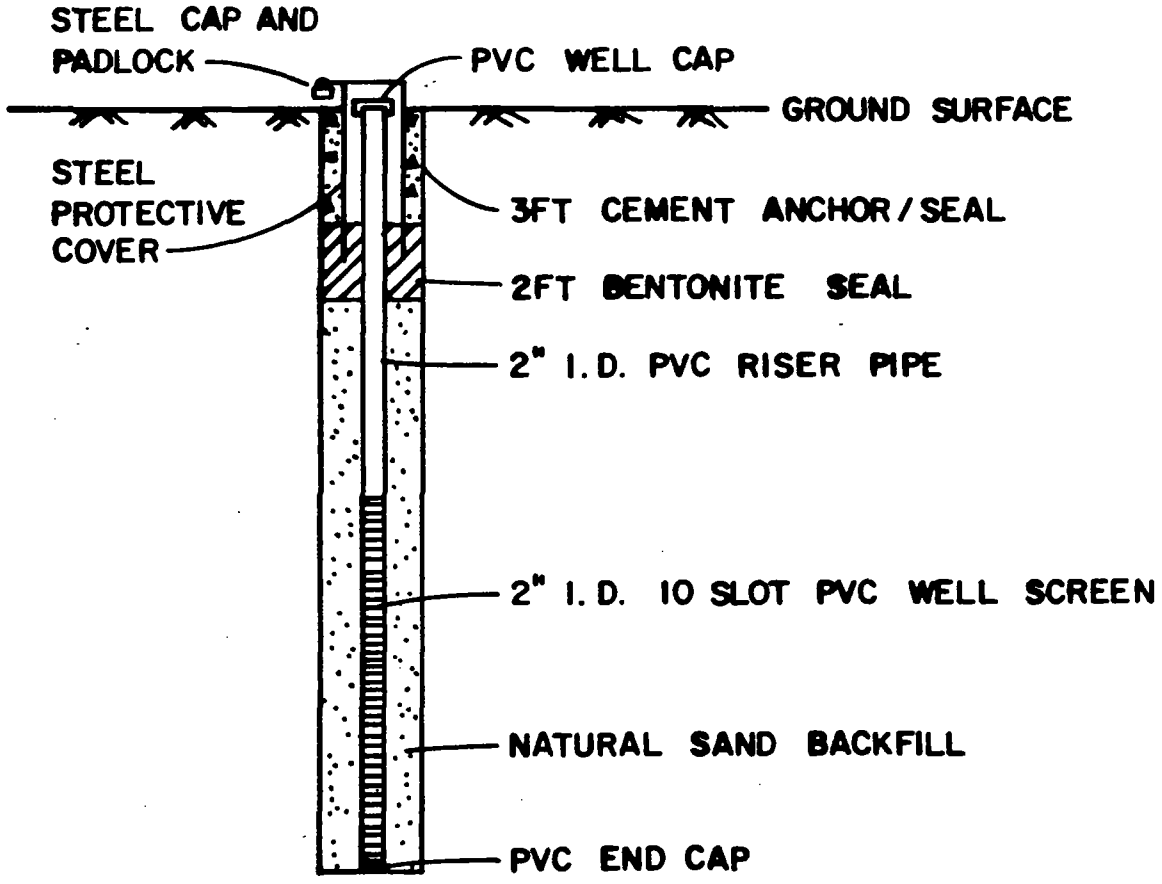
Field Classification Sheet

FIELD INVESTIGATION

The field investigation took place in two stages. The initial investigation was conducted October 9 through 12, 1984 and included a general site reconnaissance. This consisted of inspection of the riverbank between Bridge Street and the Moore residence, as well as sampling of the riverbank and river water adjacent to the bank. This initial stage also included the installation of ten 2 in. diameter PVC observation wells to help determine the type of contaminant, and the location of its source. Split-spoon soil samples were obtained during the installation of the wells, and liquid samples were obtained from the wells after development. The wells were covered with steel protective caps, and padlocked to prevent vandalism. A typical installation is shown in Figure A1.

The second stage of the field investigation (October 26, 1984) was conducted two weeks after the first was completed. It included obtaining a second set of liquid samples from the observation wells previously installed, as well as obtaining samples from the storm and sanitary sewers adjacent to the site. A general site inspection was also conducted.

Logs of all borings made as part of the observation well installation have been included in this appendix. The logs show visual descriptions of all soil strata encountered using the unified soil classification system. Field notes on sampling, groundwater elevation, and contaminant identification made during the well installation are also noted on the logs. A sheet defining the terms and symbols used on the logs and explaining the standard peneration test procedure is also included.



TYPICAL OBSERVATION WELL

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FIGURE A1

ATEC Associates, Inc.
Consulting Geotechnical & Materials Engineers

LOG OF BORING NO. MW-1

CLIENT U.S. Coast Guard
PROJECT NAME Gasoline Seep
PROJECT LOCATION Elkhart, Indiana
BORING LOCATION See Boring Location Plan
FOREMAN R. Hackman
INSPECTOR K. Suter

JOB NO. 21-43162
DATE 10/9/84
BORING METHOD HSA
ROCK CORE DIA. - IN.
SHELBY TUBE DIA. - IN.

MATERIAL DESCRIPTION (SURFACE ELEVATION 99.18)	STRATUM DEPTH, FT.	DEPTH, FT.	STD. PENETRATION: SAMPLE NO.	STD. PENETRATION: BLOWS/6 IN; THREE 6 IN. INCREMENTS	STD. PENETRATION: RECOVERY, %	SHELBY TUBE NO.	BORING AND SAMPLING NOTES
Crushed Limestone Parking Lot .5'							Set 2" I.D. PVC observation well to 27.7' depth
Brown moist loose fine to coarse SAND (SP) with trace Silt and trace Gravel	3.0		1	1 1/1	90		
Brown slightly moist medium dense SILTY fine to coarse SAND (SM) with trace Gravel		5	2	6 6/6	25		Factory slotted screen (10 slot) from 17.7' to 27.7'
	8.0		3	7 7/8	40		
Brown slightly moist dense fine to coarse SAND (SP) with trace Silt and trace Gravel	10.5	10	4	4 11/17	60		Measuring point (black mark at top of casing) at El 98.93
Brown slightly moist dense SILTY fine to coarse SAND (SM) with trace Gravel	11.5		5	8 20/24	60		
Brown slightly moist dense fine to coarse SAND (SP) with trace Silt and trace Gravel			6	5 12/18	60		Concrete pad north of and adjacent to Red-D-Mart door assumed El 100.0
-medium dense below 13.5'		15					
-dense below 16.0'			7	6 14/21	50		
-medium dense below 18.5'							Hydrocarbon odor in soil samples from 19.5' to 24.5'
-loose wet below 21.0'		20	8	12 14/6			
-medium dense below 23.5'			9	6 4/4			
			10	5 6/5			
		25					
Bottom of Test Boring @ 28.5'							

WATER LEVEL OBSERVATIONS
NOTED ON RODS 21.5 FT.
AT COMPLETION ____ FT.
AFTER ____ HRS. ____ FT.

BORING METHOD
HSA — HOLLOW STEM AUGER
CFA — CONTINUOUS FLIGHT AUGER
DC — DRIVEN CASING
MD — MUD DRILLING
RC — ROCK CORING
CA — CASING ADVANCER

*THESE SHELBY TUBE SAMPLES OBTAINED IN AN AUXILIARY BORING DRILLED A FEW FEET FROM THIS BORING

ATEC Associates, Inc.
Consulting Geotechnical & Materials Engineers

LOG OF BORING NO. MW-2

CLIENT U.S. Coast Guard
PROJECT NAME Gasoline Seep
PROJECT LOCATION Elkhart, Indiana
BORING LOCATION See Boring Location Plan
FOREMAN R. Hackman
INSPECTOR K. Suter

JOB NO. 21-43162
DATE 10/10/84
BORING METHOD HSA
ROCK CORE DIA. - IN.
SHELBY TUBE DIA. - IN.

MATERIAL DESCRIPTION SURFACE ELEVATION 98.23	STRATUM DEPTH, FT.	DEPTH, FT.	STD. PENETRATION: SAMPLE NO.	STD. PENETRATION: BLOWS/6 IN; THREE 6 IN. INCREMENTS	STD. PENETRATION: RECOVERY, %	SHELBY TUBE NO.	BORING AND SAMPLING NOTES
Brown moist medium dense fine to coarse SAND (SP) with trace Silt and trace Gravel							Set 2" I.D. PVC observation well to 29.0' depth
			1	5 6/7	100		Factory slotted screen (10 slot) from 19.0' to 29.0'
		5					
			2	4 7/10	75		Measuring point (black mark at top of casing) at El 98.94
		10					
			3	7 12/18	70		Concrete pad north of and adjacent to Red-D-Mart door assumed El 100.0
-wet, little Gravel below 17.0'		15					23.5' to 25.0' Sample discolored
			4	8 13/9	75		
-dense below 21.0'		20					Faint hydrocarbon odor in Samples 5, 6 and 7
			5	8 14/23	100		
			6	10 14/18	70		
	25.5	25					
Brown wet dense CLAYEY SILTY fine to coarse SAND (SM) with trace Gravel			7	12 21/14	100		
Bottom of Test Boring @ 29.0'		30					

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WATER LEVEL OBSERVATIONS
NOTED ON RODS 22.0 FT.
AT COMPLETION ____ FT.
AFTER ____ HRS. ____ FT.

BORING METHOD
HSA—HOLLOW STEM AUGER
CFA—CONTINUOUS FLIGHT AUGER
DC —DRIVEN CASING
MD —MUD DRILLING
RC —ROCK CORING
CA —CASING ADVANCER

*THESE SHELBY TUBE SAMPLES OBTAINED IN AN AUXILIARY BORING DRILLED A FEW FEET FROM THIS BORING

ATEC Associates, Inc.
Consulting Geotechnical & Materials Engineers

LOG OF BORING NO. MW-3

CLIENT U.S. Coast Guard — JOB NO. 21-43162
PROJECT NAME Gasoline Seep — DATE 10/10/84
PROJECT LOCATION Elkhart, Indiana — BORING METHOD HSA
BORING LOCATION See Boring Location Plan — ROCK CORE DIA. - IN.
FOREMAN R. Hackman — SHELBY TUBE DIA. - IN.
INSPECTOR K. Suter

MATERIAL DESCRIPTION (SURFACE ELEVATION 100.44)	STRATUM DEPTH, FT.	DEPTH, FT.	STD. PENETRATION: SAMPLE NO.	STD. PENETRATION: BLOWS/6 IN; THREE 6 IN. INCREMENTS	STD. PENETRATION: RECOVERY, %	SHELBY TUBE NO.	BORING AND SAMPLING NOTES
Dark brown Silty fine to coarse Sand with trace Gravel (FILL)	1.0						Set 2" I.D. PVC observation well to 25.0' depth
Brown slightly moist medium dense fine to coarse SAND (SP) with trace Silt and trace Gravel		5	1	3 5/6	66		Factory slotted screen (10 slot) from 15' to 25'
		10	2	9 11/18	80		Measuring point (black mark at top of casing) at El 100.44
-dense below 13.5'		15	3	12 18/25	80		Concrete pad north of and adjacent to Red-D-Mart door assumed El 100.0
-wet, medium dense below 18.5'			4	6 12/17	80		Trace hydrocarbon odor in Sample 4
Green wet medium dense fine to coarse SAND (SP) with trace Silt and trace Gravel	20.5	20	5	7 8/10	100		
Bottom of Test Boring @ 25.0'		25	6	7 9/9	80		

WATER LEVEL OBSERVATIONS
NOTED ON RODS 18.0 FT.
AT COMPLETION ____ FT.
AFTER ____ HRS. ____ FT.

BORING METHOD
HSA — HOLLOW STEM AUGER
CFA — CONTINUOUS FLIGHT AUGER
DC — DRIVEN CASING
MD — MUD DRILLING
RC — ROCK CORING
CA — CASING ADVANCER

*THESE SHELBY TUBE SAMPLES OBTAINED IN AN AUXILIARY BORING DRILLED A FEW FEET FROM THIS BORING

ATEC Associates, Inc.
Consulting Geotechnical & Materials Engineers

LOG OF BORING NO. MW-4

CLIENT U.S. Coast Guard
PROJECT NAME Gasoline Seep
PROJECT LOCATION Elkhart, Indiana
BORING LOCATION See Boring Location Plan
FOREMAN R. Hackman
INSPECTOR K. Suter

JOB NO. 21-43162
DATE 10/10/84
BORING METHOD HSA
ROCK CORE DIA. - IN.
SHELBY TUBE DIA. - IN.

MATERIAL DESCRIPTION (SURFACE ELEVATION 99.21)	STRATUM DEPTH, FT.	DEPTH, FT.	STD. PENETRATION: SAMPLE NO.	STD. PENETRATION: BLOWS/6 IN; THREE 6 IN. INCREMENTS	STD. PENETRATION: RECOVERY, %	SHELBY TUBE NO.	BORING AND SAMPLING NOTES
Dark brown Silty fine to medium Sand with trace Gravel (FILL)	1.5						Set 2" I.D. PVC observation well to 27.0' depth
Brown slightly moist medium dense fine to coarse SAND (SP) with trace Silt and trace Gravel		5	1	7 5/6	66		Factory slotted screen (10 slot) from 17.0' to 27.0'
-dense below 8.5'		10	2	7 14/18	70		Measuring point (black mark at top of casing) at El 99.09
-very dense below 13.5'		15	3	8 20/33	100		Concrete pad north of and adjacent to Red-D-Mart door assumed El 100.0
-wet dense below 18.5'		20	4	9 15/19	25		Cobbles from 10.5' to 11.5'
			5	4 9/14	100		
		25	6	7 9/9	80		
Bottom of Test Boring @ 27.0'							

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WATER LEVEL OBSERVATIONS
NOTED ON RODS 19.5 FT.
AT COMPLETION ____ FT.
AFTER ____ HRS. ____ FT.

BORING METHOD
HSA—HOLLOW STEM AUGER
CFA—CONTINUOUS FLIGHT AUGER
DC —DRIVEN CASING
MD —MUD DRILLING
RC —ROCK CORING
CA —CASING ADVANCER

*THESE SHELBY TUBE SAMPLES OBTAINED IN AN AUXILIARY BORING DRILLED A FEW FEET FROM THIS BORING

ATEC Associates, Inc.
Consulting Geotechnical & Materials Engineers

LOG OF BORING NO. MW-5

CLIENT U.S. Coast Guard — JOB NO. 21-43162
PROJECT NAME Gasoline Seep — DATE 10/10/84
PROJECT LOCATION Elkhart, Indiana — BORING METHOD HSA
BORING LOCATION See Boring Location Plan — ROCK CORE DIA. - IN.
FOREMAN R. Hackman — SHELBY TUBE DIA. - IN.
INSPECTOR K. Suter

MATERIAL DESCRIPTION (SURFACE ELEVATION 99.47)	STRATUM DEPTH, FT.	DEPTH, FT.	STD. PENETRATION: SAMPLE NO.	STD. PENETRATION: BLOWS/6 IN. THREE 6 IN. INCREMENTS	STD. PENETRATION: RECOVERY, %	SHELBY TUBE NO.	BORING AND SAMPLING NOTES
Dark brown Silty Clayey fine to coarse Sand with trace Gravel (FILL)	1.5						Set 2" I.D. PVC observation well to 26.5' depth
Brown slightly moist medium dense fine to coarse SAND (SP) with trace Silt and trace Gravel		5	1	5 7/11	66		Factory slotted screen (10 slot) from 16.5' to 26.5'
-very dense below 8.5'		10	2	50 .5'	90		Measuring point (black mark at top of casing) at El 99.30
-dense below 13.5'		15	3	10 14/26	80		Concrete pad north of and adjacent to Red-D-Mart door assumed El 100.0
-wet, medium dense below 18.5'		20	4	10 13/15	95		
			5	7 10/11	100		
		25	6	9 11/13			
Bottom of Test Boring @ 26.5'							

WATER LEVEL OBSERVATIONS
NOTED ON RODS 19.5 FT.
AT COMPLETION ____ FT.
AFTER ____ HRS ____ FT.

BORING METHOD
HSA — HOLLOW STEM AUGER
CFA — CONTINUOUS FLIGHT AUGER
DC — DRIVEN CASING
MD — MUD DRILLING
RC — ROCK CORING
CA — CASING ADVANCER

*THESE SHELBY TUBE SAMPLES OBTAINED IN AN AUXILIARY BORING DRILLED A FEW FEET FROM THIS BORING

ATEC Associates, Inc.
Consulting Geotechnical & Materials Engineers

LOG OF BORING NO. MW-6

CLIENT U.S. Coast Guard
PROJECT NAME Gasoline Seep
PROJECT LOCATION Elkhart, Indiana
BORING LOCATION See Boring Location Plan
FOREMAN R. Hackman
INSPECTOR K. Suter

JOB NO. 21-43162
DATE 10/11/84
BORING METHOD HSA
ROCK CORE DIA. - IN.
SHELBY TUBE DIA. - IN.

MATERIAL DESCRIPTION SURFACE ELEVATION 98.90	STRATUM DEPTH, FT.	DEPTH, FT.	STD. PENETRATION SAMPLE NO.	BLOWS/6 IN; THREE 6 IN. INCREMENTS	RECOVERY, %	SHELBY TUBE NO.	BORING AND SAMPLING NOTES
Crushed Limestone Parking Lot .5' Dark brown slightly moist loose fine to coarse SAND (SP) with some Gravel and trace Silt	7.5	5	1	3 3/4	35		Set 2" I.D. PVC observation well to 26.5' depth Factory slotted screen (10 slot) from 16.5' to 26.5'
Brown slightly moist medium dense fine to medium SAND (SP) with trace Gravel and trace Silt	13.5	10	2	4 8/10	75		Measuring point (black mark at top of casing) at El 98.67 Concrete pad north of and adjacent to Red-D-Mart door assumed El 100.0
Brown and gray moist dense fine to coarse SAND (SP) with trace Gravel	20.5	15 20	3 4	6 15/21 12 16/18	80		Cobbles 9.0' - 10.0' Sample 3 top and 3 bottom
Gray wet medium dense fine to medium SAND (SP)	23.0		5	7 11/13			Hydrocarbon odor in Samples 4 and 5
Brown and gray wet loose fine to coarse SAND (SP) with trace Gravel	25.5	25	6	6 5/5			
Brown wet medium dense CLAYEY SAND (SC) with trace Shale fragments			7	7 8/9			
Bottom of Test Boring @ 27.5'							

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WATER LEVEL OBSERVATIONS
NOTED ON RODS 19.5 FT.
AT COMPLETION ____ FT.
AFTER ____ HRS. ____ FT.

BORING METHOD
HSA—HOLLOW STEM AUGER
CFA—CONTINUOUS FLIGHT AUGER
DC —DRIVEN CASING
MD —MUD DRILLING
RC —ROCK CORING
CA —CASING ADVANCER

*THESE SHELBY TUBE SAMPLES OBTAINED IN AN AUXILIARY BORING DRILLED A FEW FEET FROM THIS BORING

ATEC Associates, Inc.
Consulting Geotechnical & Materials Engineers

LOG OF BORING NO. MW-7

CLIENT U.S. Coast Guard
PROJECT NAME Gasoline Seep
PROJECT LOCATION Elkhart, Indiana
BORING LOCATION See Boring Location Plan
FOREMAN R. Hackman
INSPECTOR K. Suter

JOB NO. 21-43162
DATE 10/11/84
BORING METHOD HSA
ROCK CORE DIA. - IN.
SHELBY TUBE DIA. - IN.

MATERIAL DESCRIPTION	STRATUM DEPTH, FT.	DEPTH, FT.	STD. PENETRATION SAMPLE NO.	BLOWS/6 IN; THREE 6 IN. INCREMENTS	RECOVERY, %	SHELBY TUBE NO.	BORING AND SAMPLING NOTES
SURFACE ELEVATION 98.70							
.3' Asphalt Parking Lot Brown moist loose fine to medium Sand (FILL) -cobbles below 4.0'	8.0	5	1	1 1/3	95		Set 2" I.D. PVC observation well to 25.0' depth Factory slotted screen (10 slot) from 15.0' to 25.0'
Brown moist medium dense fine to coarse Sand with roots and Clay tile fragments (FILL)	11.0	10	2	4 5/7	95		Measuring point (black mark at top of casing) at El 98.62 Concrete pad north of and adjacent to Red-D-Mart door assumed El 100.0
Light brown and gray slightly moist dense fine to coarse SAND (SP) with trace Gravel	17.0	15	3	8 19/23	95		Hydrocarbon odor in 18.5' to 20.0' sample
Gray to dark gray wet dense fine to coarse SAND (SP)	21.0	20	4	9 19/14	80		
Brown wet medium dense fine to coarse SAND (SP)			5	5 6/6	75		
		25	6	7 9/11	10		
Bottom of Test Boring @ 25.0'							

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WATER LEVEL OBSERVATIONS
NOTED ON RODS 18.0 FT.
AT COMPLETION ____ FT.
AFTER ____ HRS ____ FT.

BORING METHOD
HSA — HOLLOW STEM AUGER
CFA — CONTINUOUS FLIGHT AUGER
DC — DRIVEN CASING
MD — MUD DRILLING
RC — ROCK CORING
CA — CASING ADVANCER

*THESE SHELBY TUBE SAMPLES OBTAINED IN AN AUXILIARY BORING DRILLED A FEW FEET FROM THIS BORING

ATEC Associates, Inc.
Consulting Geotechnical & Materials Engineers

LOG OF BORING NO. MW-8

CLIENT U.S. Coast Guard — JOB NO. 21-43162
PROJECT NAME Gasoline Seep — DATE 10/11/84
PROJECT LOCATION Elkhart, Indiana — BORING METHOD HSA
BORING LOCATION See Boring Location Plan — ROCK CORE DIA. - IN.
FOREMAN R. Hackman — SHELBY TUBE DIA. - IN.
INSPECTOR K. Suter

MATERIAL DESCRIPTION	STRATUM DEPTH, FT.	DEPTH, FT.	STD. PENETRATION: SAMPLE NO.	STD. PENETRATION: BLOWS/6 IN; THREE 6 IN. INCREMENTS	STD. PENETRATION: RECOVERY, %	SHELBY TUBE NO.	BORING AND SAMPLING NOTES
SURFACE ELEVATION 98.99							
Dark brown and gray moist medium dense SILTY CLAYEY fine to coarse SAND (SC)							Set 2" I.D. PVC observation well to 20.0' depth
	4.8		1	3 7/16	90		
Light brown and gray slightly moist medium dense fine to coarse SAND (SP) -trace Gravel below 7.0' -light brown below 8.0'		5					Factory slotted screen (10 slot) from 10.0' to 20.0'
			2	8 12/12	75		Measuring point (black mark at top of casing) at El 98.82
	12.5	10					
Dark gray wet medium dense fine to coarse SAND (SP) -brown and gray, trace Gravel below 15.0' -dense below 15.5'			3	8 14/18	75		Concrete pad north of and adjacent to Red-D-Mart door assumed El 100.0
		15	4	11 14/17	75		
			5	12 16/23	70		
Bottom of Test Boring @ 20.0'		20					

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WATER LEVEL OBSERVATIONS
NOTED ON RODS 13.0 FT.
AT COMPLETION ____ FT.
AFTER ____ HRS. ____ FT.

BORING METHOD
HSA—HOLLOW STEM AUGER
CFA—CONTINUOUS FLIGHT AUGER
DC —DRIVEN CASING
MD —MUD DRILLING
RC —ROCK CORING
CA —CASING ADVANCER

*THESE SHELBY TUBE SAMPLES OBTAINED IN AN AUXILIARY BORING DRILLED A FEW FEET FROM THIS BORING

ATEC Associates, Inc.
Consulting Geotechnical & Materials Engineers

LOG OF BORING NO. MW-9

CLIENT U.S. Coast Guard
PROJECT NAME Gasoline Seep
PROJECT LOCATION Elkhart, Indiana
BORING LOCATION See Boring Location Plan
FOREMAN R. Hackman
INSPECTOR K. Suter

JOB NO. 21-43162
DATE 10/12/84
BORING METHOD HSA
ROCK CORE DIA. - IN.
SHELBY TUBE DIA. - IN.

MATERIAL DESCRIPTION (SURFACE ELEVATION 98.71)	STRATUM DEPTH, FT.	DEPTH, FT.	STD. PENETRATION SAMPLE NO.	BLOWS/6 IN; THREE 6 IN. INCREMENTS	RECOVERY, %	SHELBY TUBE NO.	BORING AND SAMPLING NOTES
Brown slightly moist loose SILTY fine to coarse SAND (SM) with trace Gravel	5.0	5	1	5 3/4	60		Set 2" I.D. PVC observation well to 26.5' depth Factory slotted screen (10 slot) from 16.5' to 26.5'. Measuring point (black mark at top of casing) at El 98.50 Concrete pad north of and adjacent to Red-D-Mart door assumed El 100.0
Brown slightly moist dense fine to coarse SAND (SP) with trace Silt and trace Gravel	12.0	10	2	7 14/21	95		
Brown slightly moist very dense SILTY fine to coarse SAND (SM)	17.0	15	3	14 25/38	100		
Brown wet medium dense fine to coarse SAND (SP) with trace Gravel -loose below 21.0' -medium dense below 23.5'		20	4	7 9/12	100		
			5	2 3/5	33		
		25	6	9 7/9	80		
Bottom of Test Boring @ 26.5'							

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WATER LEVEL OBSERVATIONS
NOTED ON RODS 19.5 FT.
AT COMPLETION ____ FT.
AFTER ____ HRS. ____ FT.

BORING METHOD
HSA—HOLLOW STEM AUGER
CFA—CONTINUOUS FLIGHT AUGER
DC —DRIVEN CASING
MD —MUD DRILLING
RC —ROCK CORING
CA —CASING ADVANCER

*THESE SHELBY TUBE SAMPLES OBTAINED IN AN AUXILIARY BORING DRILLED A FEW FEET FROM THIS BORING

ATEC Associates, Inc.
Consulting Geotechnical & Materials Engineers

LOG OF BORING NO. MW 10

CLIENT U.S. Coast Guard — JOB NO. 21-43162
PROJECT NAME Gasoline Seep — DATE 10/12/84
PROJECT LOCATION Elkhart, Indiana — BORING METHOD HSA
BORING LOCATION See Boring Location Plan — ROCK CORE DIA. - IN.
FOREMAN R. Hackman — SHELBY TUBE DIA. - IN.
INSPECTOR K. Suter

MATERIAL DESCRIPTION (SURFACE ELEVATION 98.91)	STRATUM DEPTH, FT.	DEPTH, FT.	STD. PENETRATION: SAMPLE NO.	STD. PENETRATION: BLOWS/6 IN; THREE 6 IN. INCREMENTS	STD. PENETRATION: RECOVERY, %	SHELBY TUBE NO.	BORING AND SAMPLING NOTES
Brown moist Sandy Silt and Gravel (FILL)		5					Set 2" I.D. PVC observation well to 25.5' depth Factory slotted screen (10 slot) from 15.5 to 25.5' Measuring point (black mark at top of casing) at El 98.44 Concrete pad north of and adjacent to Red-D-Mart door assumed El 100.0 Faint hydrocarbon odor in sample 3
	6.5						
Brown slightly moist medium dense fine to medium SAND (SP-SM) with trace Silt		10	1	5 7/10	80		
	11.0						
Brown slightly moist loose fine to coarse SAND (SP) with trace Silt and trace Gravel		15	2	2 3/3	70		
	18.0						
Brown wet very loose fine to coarse SAND (SP) with trace Silt and trace Gravel -medium dense below 21.0'		20	3	0 0/3	75		
			4	5 7/9	66		
		25	5	7 8/11	80		
Bottom of Test Boring @ 25.5'							

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WATER LEVEL OBSERVATIONS
NOTED ON RODS 18.0 FT.
AT COMPLETION ____ FT.
AFTER ____ HRS. ____ FT.

BORING METHOD
HSA—HOLLOW STEM AUGER
CFA—CONTINUOUS FLIGHT AUGER
DC —DRIVEN CASING
MD —MUD DRILLING
RC —ROCK CORING
CA —CASING ADVANCER

*THESE SHELBY TUBE SAMPLES OBTAINED IN AN AUXILIARY BORING DRILLED A FEW FEET FROM THIS BORING

FIELD CLASSIFICATION SYSTEM FOR SOIL EXPLORATION

NON COHESIVE SOILS
(Silt, Sand, Gravel and Combinations)

Density

Very Loose	- 5 blows/ft. or less
Loose	- 6 to 10 blows/ft.
Medium Dense	-11 to 30 blows/ft.
Dense	-31 to 50 blows/ft.
Very Dense	-51 blows/ft. or more

Relative Proportions

Descriptive Term	Percent
Trace	1 -10
Little	11-20
Some	21-35
And	36-50

Particle Size Identification

Boulders	-8 inch diameter or more	
Cobbles	-3 to 8 inch diameter	
Gravel	-Coarse	-1 to 3 inch
	Medium	-½ to 1 inch
	Fine	-¼ to ½ inch
Sand	-Coarse	2.00mm to ¼ inch (dia. of pencil lead)
	Medium	0.42 to 2.00mm (dia. of broom straw)
	Fine	0.074 to 0.42mm (Dia. of human hair)
Silt		0.074 to 0.002mm (Cannot see particles)

COHESIVE SOILS
(Clay, Silt and Combinations)

Consistency

Very Soft	- 3 blows/ft. or less
Soft	- 4 to 5 blows/ft.
Medium Stiff	- 6 to 10 blows/ft.
Stiff	-11 to 15 blows/ft.
Very Stiff	-16 top 30 blows/ft.
Hard	-31 blows/ft. or more

Plasticity

Degree of Plasticity	Plasticity Index
None to slight	0- 4
Slight	5- 7
Medium	8-22
High to Very High	over 22

Classification on logs are made by visual inspection of samples.

Standard Penetration Test — Driving a 2.0" O.D., 1-3/8" I.D., sampler a distance of 1.0 foot into undisturbed soil with a 140 pound hammer free falling a distance of 30.0 inches. It is customary for ATEC to drive the spoon 6.0 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and making the test are recorded for each 6.0 inches of penetration on the drill log (Example — 6/8/9). The standard penetration test result can be obtained by adding the last two figures (i.e. 8+ 9 = 17 blows/ft.). (ASTM D-1586-67)

Strata Changes — In the column "Soil Descriptions" on the drill log the horizontal lines represent strata changes. A solid line (_____) represents an actually observed change, a dashed line (_ _ _ _) represents an estimated change.

Ground Water observations were made at the times indicated. Porosity of soil strata, weather conditions, site topography, etc., may cause changes in the water levels indicated on the logs.

APPENDIX B

Laboratory Investigation

LABORATORY INVESTIGATION

The laboratory analyses were conducted by three laboratories. The samples of soil and water obtained by ATEC personnel between October 9 and 12 were analyzed by ATEC Associates. The samples obtained by ATEC personnel on October 26 were analyzed by EMS Laboratories, Inc. The water samples obtained by the EPA TAT members on October 25 were analyzed in an EPA mobile laboratory in Niles, Michigan.

Soil Samples

The split-spoon samples were insepcted and classified by a soils engineer in accordance with the Unified Soil Classification System, and the field borings logs were edited as necessary. In addition, gasoline content analyses and analyses for volatile organic compounds were performed on selected soil samples. The tests were run using a gas chromatograph. The results of these tests have been included in Tables 4 and 5 in Section 5.0 of the report.

Water Samples

Water samples were obtained from the observation wells installed, as well as from the storm and sanitary sewers and local wells. These samples were also tested for gasoline content and the presence of volatile organic compounds. The results of these tests and tests on the water from private wells are included in Tables 4, 5, 6 and 7 in Section 5.0 of the report.

Coffield SUPPLY CORPORATION
1626 SOUTH MAIN STREET • SOUTH BEND, INDIANA 46613 • PHONE 219 / 287-2971

AUG 12 1983

August 11, 1983

Elkhart Health Dept.
315 S. Second St.
Elkhart, Indiana 46516

Attention: Ms. Peg Kelly

Gentlemen:

At the request of Abshire Oil Company of Goshen, Indiana, our company put an air pressure test on the underground gasoline tanks located at their station at Indiana and Franklin Streets, Elkhart, Indiana. This was done on March 11, 1983. We pressurized all tanks to 4 lbs. per square inch each and left the pressure for approximately ninety minutes. There was no pressure loss observed in that time. Our conclusion is that the tanks at that location do not leak based on this pressure test.

Please do not hesitate to contact us if you have any questions.

Very truly yours,

COFFIELD SUPPLY CORPORATION

Robert P. Lovett, President

RPL:lk
cc: Abshire

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MW2 behind old station

10-19-84 Boring 2 Soil Sample 18.5 - 20' no gasoline but she doesn't know the detection level

10-16-84 Boring 1 Soil Sample MW-1 4,000 mg/kg Gasoline
1 mg/kg TCE

10-1-84 BORING 7 Soil sample No Gasoline
Red-D-Mart MW7 .4 mg/kg TCE
.6 mg/kg Chlorathane? 111 trichloroethane
2.5 mg/kg Chloroform
70 mg/kg Methylene Chloride

10-1-84 BORING 1 Liquid Sample monitor well 1 near river
No gasoline - detection limit ~ 50 ppb

* Methylene Chloride 9.8 ppm
Dichloroethene 42.2 ppb
Chloroform 36.4 ppb
1-1-1 trichloroethane 152.6 ppb
TCE 39.8 ppb

B-6 Bottom of Sample 4 Soil
No purgibles MW6
Gasoline ~1000ppm

B-7 No purgibles Liquid
No gasoline
Red-D-Mart MW7

Indiana + Franklin

Oct 22

Riverdp - small amount, clear - slight

Well #6 6-B'' Gasoline - clear yellow

#1 Clean

#7 Lock Broken - only dirt inside
metal casing on outside
of PVC Lid

Black Floater 3 inches

#2 Clean

#10 clean

#3 Algae

#4 Clean

Elkhart County Health Department

2400 ELKHART ROAD
GOSHEN, INDIANA 46526
PHONE: (219) 534-1404

STAN REEDY, M.D., M.P.H.
HEALTH OFFICER

December 5, 1984

Mr. and Mrs. Wayne Moore
1606 Indiana Avenue
Elkhart, IN 46516

Dear Mr. and Mrs. Moore:

The following are the results of the volatile organic chemical skan test run on a sample of your well water on October 26, 1984 and as tested and reported by the USEPA Technical Assistance Team out of Chicago:

1,2 Dichloroethane	1.6 parts per billion
Trichloroethylene	7.3 ppb
Tetrachloroethylene	none detected
1,1 Dichloroethane	13.2 ppb
1,1,1 Trichloroethane	2.4 ppb
Toluene	1.0 ppb

There was no evidence of gasoline found in your water despite such being found in a monitoring well close to your home. As this well is near your home and at the approximate same depth, the possibility exists of contaminant movement in your direction. As we are clearly dealing with two distinct problems here, we must continue our insistence that you hook onto city water that is available to you. Drilling a deeper well cannot guarantee freedom from contamination.

Thank you for your continued assistance in this matter. We are still awaiting consultant reports and our investigation continues into locating the source(s).

Sincerely,

Richard T. Brown

Richard T. Brown, M.P.A.
Groundwater Protection Specialist

P.S. As I stated to you by phone, none of the above levels are above the EPA Health Advisory Levels. There is, of course, no guarantee that these levels will not change in the future.

ELKHART OFFICE PHONE: (219) 294-1688

Elkhart County Health Department

2400 ELKHART ROAD
GOSHEN, INDIANA 46526
PHONE: (219) 534-1404

STAN REEDY, M.D., M.P.H.
HEALTH OFFICER

December 5, 1984

Ms. Leigh Davenport
1610 Indiana Avenue
Elkhart, IN 46516

Dear Ms. Davenport:

The following are the results of the volatile organic chemical skan test run on a sample of your well water on October 26, 1984 and as tested and reported by the USEPA Technical Assistance Team out of Chicago:

1,2 Dichloroethylene	3.5 parts per billion
Trichloroethylene	19.3 ppb
Tetrachloroethylene	none detected
1,1 Dichloroethane	50.7 ppb
1,1,1 Trichloroethane	7.5 ppb

There was no evidence of gasoline in your well water sample as tested on the above datedespite such being found in a monitoring well near your home and at the approximate same depth as your own well. None of the levels listed above are above the EPA Health Advisory levels. Nonetheless, we must continue our insistence that you hook onto city water that is available to you. Drilling a deeper well cannot guarantee freedom from contamination.

Our investigative efforts continue into locating the source or sources of contamination. We are clearly dealing with two distinct problems here which makes matters even more complicated. Your continued cooperation in this matter is appreciated. Please feel free to contact our office should you have any additional questions.

Sincerely,

Richard T. Brown, M.P.A.
Groundwater Protection Specialist

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SUSTACAL® Nutritionally Complete Liquid Diet

ISOCAL® Nutritionally Complete Liquid Tube-feeding

9/25/84 DR. GEORGE MADANY FROM EPA ARRIVED TO LOOK INTO PROBLEM. WE OBSERVED A THICK YELLOW PETROLEUM PRODUCT ON THE RIVER. HE IS A SPILL RESPONSE TEAM ON-SCENE COORDINATOR. SAYS HE'LL "HELP US". HE TALKED TO JOHN WALKER AT FIRE DEPT. & GIVEN JOE PETERS TX #.

SUSTACAL® Nutritionally Complete Liquid Diet

ISOCAL® Nutritionally Complete Liquid Tube-feeding

9/7/84 SPOKE WITH JOE PETERS. SAID AIR TEST DONE YESTERDAY SHOWED NO LEAKS IN TANK OR LINES. TEST DONE BY B. LOVICK OF COFFIELD SUPPLY 287-2971. INVENTORY SHOWED 11 GAL. LEADED FUEL DISCREPANY & ABOUT 30 GAL. UNLEADED.

ALL TANKS ARE TO BE GLASS-LINED ON 9/17 AS WELL AS LINES. SAYS THEY USE SUCTION PUMPS WHICH WILL STOP IF A LINE LEAK AS PRIME WILL BE LOST.

L-A800-3-84

© 1984, Mead Johnson & Company • Evansville, Indiana 47721 U.S.A.

Holiday Inn CHICAGO CITY CENTRE

10/11

per Dave Bates - city

only houses not on city

Water in immediate vicinity

of Franklin & Indiana are

those we tested earlier &

should test again

Moore 1606 W. Indiana

Davenport 1610 W. Indiana

(these are indicated on aerial map)

"successful meetings start here"

STATE OF INDIANA

INDIANAPOLIS

STATE BOARD OF HEALTH

AN EQUAL OPPORTUNITY EMPLOYER

Address Reply to:
Indiana State Board of Health
1330 West Michigan Street
P. O. Box 1964
Indianapolis, IN 46206-1964

June 21, 1984

John Walker, Bureau Chief
Elkhart Fire Department
500 East Street
Elkhart, IN 46516

Dear Chief Walker:

Re: Abandoned Gas Station and
Underground Storage Tanks

As stated in our telephone conversation this morning, our Agency has been investigating a petroleum discharge into the St. Joseph River. As a result of this investigation, we have located an abandoned gasoline station containing an undetermined number of underground storage tanks. Approximately four inches of suspected gasoline was measured in two of the storage tanks. In addition, we also suspect the presence of two more storage tanks, contents unknown.

The abandoned gasoline station is located at the intersection of West Franklin Street and West Indiana Street in Elkhart. We believe the owner is Bruce Gaffill of Gaffill Oil in South Bend, Indiana. Mr. Gaffill's home phone number is 289-6104, and his office phone number is 233-3233.

This situation requires your immediate attention. If I can assist you in any way, please contact me at 317/633-0841.

Very truly yours,

Gregg M. Lemasters
Ground Water Unit
Division of Water Pollution Control

cc: Earl Bohner
Joe Stallsmith
Ground Water Unit File
Peg Kelly, R.P.S.
Elkhart County Health Department

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Elkhart County Health Department

2400 ELKHART ROAD
GOSHEN, INDIANA 46526
PHONE: (219) 534-1404

STAN REEDY, M.D., M.P.H.
HEALTH OFFICER

August 22, 1983

Mr. & Mrs. Wayne Moore
1606 Indiana Avenue
Elkhart, IN 46516

Re: Groundwater contamination

Dear Mr. & Mrs. Moore:

The Elkhart County Health Department has received written notification of a groundwater contamination in the Indiana Avenue area.

As you are aware, a water sample was taken from your well on April 21, 1983, and then sent to the Indiana State Board of Health. These tests were then released to our department confirming the presence of trichloroethylene. Although the concentration was very slight, the long term effects of consuming water contaminated with TCE is not known.

To our knowledge, your well and that of your next door neighbor are the only two residents not on the city water system from this area. It is for this reason, the County recommends you hook into city water.

If you have any questions, feel free to contact me in our Goshen office at 534-1404.

Sincerely,

M. Peg Kelly, R.P.S.
Environmentalist

MPK/bp

Enclosure

Elkhart County Health Department

2400 ELKHART ROAD
GOSHEN, INDIANA 46526
PHONE: (219) 534-1404

STAN REEDY, M.D., M.P.H.
HEALTH OFFICER

August 22, 1983

Ms. Leigh Davenport
1610 Indiana Avenue
Elkhart, IN 46516

Re: Groundwater contamination

Dear Ms. Davenport:

The Elkhart County Health Department has received written notification of a groundwater contamination in the Indiana Avenue area.

As you are aware, a water sample was taken from your well on April 21, 1983, and then sent to the Indiana State Board of Health. These tests results were then released to our department confirming the presence of trichloroethylene. Although the concentration was very slight, the long term effects of consuming water contaminated with TCE is not known.

To our knowledge, your well and that of your next door neighbor are the only two residents not on the city water system from this area. It is for this reason, the County recommends you hook into city water.

If you have any questions, feel free to contact me in our Goshen office at 534-1404.

Sincerely,

M. Peg Kelly, R.P.S.
Environmentalist

MPK/bp

Enclosure

STATE OF INDIANA

INDIANAPOLIS

STATE BOARD OF HEALTH

AN EQUAL OPPORTUNITY EMPLOYER

Address Reply to:
Indiana State Board of Health
1330 West Michigan Street
P. O. Box 1964
Indianapolis, IN 46206-1964

May 25, 1984

Ms. Peg Kelly
Elkhart County Health Department
2400 Elkhart Road
Goshen, IN 46526

Dear Ms. Kelly:

Re: Petroleum Discharge
St. Joseph River

This responds to your letter of April 27, 1984. I believe you talked to Robert Carter about this on the phone, also.

The only way we can think of to discover the source would be to take sufficient soil borings from the point of emergence in the riverbed toward known current and past locations of underground storage tanks. It is quite possible that, although such tanks may not leak now, they once did, saturating the soil to slowly escape down-gradient.

We do not have the means to do such exploration ourselves and would have to look to a viable, responsible party.

Our groundwater staff will look into the matter when next in Elkhart to check on the viability of the existing and abandoned gas stations.

Very truly yours,

Earl A. Bohner, Director
Division of Water Pollution Control

LRC/vs
cc: Mr. Martin Risch
Mr. Gregg Lemasters

175

Elkhart County Health Department

2400 ELKHART ROAD
GOSHEN, INDIANA 46526
PHONE: (219) 534-1404

STAN REEDY, M.D., M.P.H.
HEALTH OFFICER

April 27, 1984

Mr. Earl Bohner, Director
Water Pollution Control
Indiana State Board of Health
1330 West Michigan Street
Elkhart, IN 46206

Dear Mr. Bohner:

Re: Petroleum discharging into
St. Joseph River

This letter is sent requesting your assistance with a water pollution problem on the St. Joseph River. Residents first complained of this petroleum contamination in March of 1983. After referral to the State Board of Health's Stream Pollution Control Division, the discharge material was analyzed and identified as a petroleum product.

From this information, we began our investigation to determine gas and oil sources throughout the area. Included in this investigation was a gas station directly across the street from the discharge site. The gas tanks were pressure tested, showing no apparent loss of product. Other potential sources, including an abandon gas station upstream, underground oil tanks, and city sewer and gas lines, were also investigated.

The contamination appears to be discharging from the river bottom, approximately three feet from the bank. The flow varies and can create a plume fifteen - twenty-five feet in width. The odor is quite noticeable and resembles that of gasoline. To date no evidence or complaints of fish kills have been reported.

We contacted John Hayworth, of the State Board of Health, upon receipt of the initial complaint. Cindy Duckwald-Galvin, was assigned to the case, but she too, has been unable to determine its origin.

At the suggestion of Mr. Hayworth, we are writing to you to request additional help, either funding or consultation, to help resolve this matter.

Should you have any questions or need additional information, please contact me at telephone (219) 294-1688. Thank you for your time and cooperation.

Sincerely,

M. Peg Kelly

M. Peg Kelly, R.P.S.
Environmentalist

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MPK:mkt

ELKHART COUNTY
COMPLAINT FORM

Date: 4-11-84 Department: - Taken By: DB

Location: N.S.E.W. side/cor. of _____ _____ mi./ft. N.S.E.W. side/cor. of _____

Address: 1603 W. Indiana Twp: _____ Zone: _____

Complaint: A white material was floating on the River behind property - said Reg was handling

Property Owner: _____ Telephone Number: _____

Address: _____

Referral - Department: _____ Date: _____

Conditions Found: 4-11-84 10:46 AM no material noted from visit. DB

Action: _____

Reinvestigation: _____ Closed: _____

By: _____ Return Call Requested: Yes _____ No _____

Reported By: Nos Wayne Moore. 10:10 AM

Address: 1606 W. Indiana

Telephone Number: —

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(11-22-81)

ELKHART COUNTY
COMPLAINT FORM

Date: 3-4-83 Department: Health Taken By: Peg Kelly

Location: (N).S.E.W. side/cor. of Franklin 75 mi./(ft.) N.S.(E).W. side/cor. of Indiana

Address: 1584 Franklin Twp: Elkhart Zone:

Complaint: gasoline discharge into St Joe River

Property Owner: Vacant Lot (parking) Telephone Number:

Address:

Referral - Department: Date:

Conditions Found: as stated: Stops & starts, about 10-15' but varying flows discharging 3-4' from shore
tried to probe water but ~~was~~ unsuccessful
water samples 4/20/83

Action: Call ISBH - will send representative (talked to Skip Powers 3-9-83 10:30am.)
3-10-83 John Haywood called requesting samples 4-20-83 samples sent to ISBH

Reinvestigation: 3-4-83, 3-8-83 Closed:

By: Peg Kelly Return Call Requested: Yes — No

Reported By: Wayne Moore

Address: 1606 Franklin, Indiana Ave.

Telephone Number: 293-9741

173

(11-22-81)

3-10-83 0684 Jay Haysworth called from ISBH
sample gasoline from Mobil
request pressure check

Mr. John Peters – Abshire Oil Co. – president
will pressure check tanks at
Mobil – Red O Mart
1589 W. Franklin St.

293-5157 Elkhart
Cindy Buckwald
875-8489

Called State Board of Health
Referral mid-April 1983

6/83 Cindy Buckwald will be handling this – called her to find out what her investigation results were & she has not been there. She will investigate and call back.

6/30/83 Tried to contact Cindy again as to investigation results – no answer

6/30/83 Talked w/ residents at 1574 & 1570 (Debbie Taylor) Evansville and no one has any ideas what substance can be & how its getting there. 1568 vacant

Gafill Oil Co.
1408 Walnut St Sunray Dx Oil
Philadelphia, PA 19103

P.O. Box 627
S. Bend, In. 46624

Lot 41 Moore's Addition
1592 W. Franklin St.
Elkhart 46516
abandon house 1588 W. Franklin 46516

July 11-12
Bruce Gafill

0633

1584 Franklin

What type chemical
How much being discharged → 10-15' wide Sometimes 2-3 hrs.
fill on soil
source

When first noticed Late Summer
How often 12 or more times (Stop-Start)
How many Homes
Why overflow

Saw many times on Sunday
running 2-3 hours at a time

1592 Franklin

(last day of month)
Feb. 28 Thorough inventory - w/in couple gallons
dip-stick method
pressure treated?

533-4171

Zab Zab oil office
12" line

State Form 4626

Organic

Check Space

Branch		Eng. Div.	
Dental		EPA	✓
Other	Elkhart Co. H. Dept.		

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
1330 West Michigan Street
INDIANAPOLIS, INDIANA 46206

Chemical Examination of Water

Do not write in this space

Lab. No. C. _____

Date Rec. _____

Date Rep. _____

FILL IN THIS SPACE. USE SOFT PENCIL.
Indiana State Board of Health is to mail report to

Mr. Thomas Wilson R.P.S.
(Name) Elkhart County Health Dept.
P.O. Box 489
(Street)
Goshen, IN 46526 INDIANA
(City or Town)

Also, mail copy of report to

(Name) Owner
(Street)
INDIANA
(City or Town)

Name of Utility or Organization Elkhart Co. Health Dept. Supt. _____

City or Town X Subdivision (Location)

Collected by: ✓ Date Collected ✓ Hour ✓

Where was sample collected? Name of Homeowner & address Bottle No. ✓

Name unusual conditions _____

FIELD INFORMATION

Indicate all treatment this sample has received.

	Check
No Treatment	X
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
pH	
CO2 mg/l	
Iron mg/l	

If applicable

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA		
Turbidity			Cadmium as Cd		
pH			Chromium (Total)		
Toluene	✓		Lead as Pb		
Hardness as CaCO3			Mercury as Hg		
MO Alk. as CaCO3			Selenium as Se		
PP Alk. as CaCO3			Silver as Ag		
Benzene	✓				
Iron as Fe			Fluorides (direct) as F		
Manganese as Mn			Nitrates as N		
1-2 Dichloroethane	✓				
Calcium as Ca			Organics		
Magnesium as Mg			Endrin		
Sodium as Na			Lindane		
Potassium as K			Methoxychlor		
Xylene	✓		Toxaphene		
Chlorides as Cl			2.4-D		
Sulphates as SO4			2.4,5-TP		
Phosphates as PO4					
Ethyl Benzene	✓		Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. μmhos/cm			Gross Beta		

REMARKS: Also forward copy to Howard Cundiff – Div. of San. Eng.

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Results are expressed in terms of mg/l except for odor color turbidity pH and specific conductance

R. T. Brown
Originator

PHONE CONVERSATION RECORD

Conversation with:
Name MARTY RISCH
Company FSBH
Address GROUNDWATER UNIT

Date 10 / 9 / 84
Time 10 AM/PM

☐ Originator Placed Call
☒ Originator Received Call

Phone
Subject FRANKLIN & INDIANA RIVER SPILL

Notes: MARTY CALLED TO RELAY PRELIMINARY FINDINGS OF 2 SAMPLES ECHD TOOK FROM RIVER ON 8/16/84. INFO AS FOLLOWS:

SAMPLE 84-8-16-1 RED, OILY SUBSTANCE
METHYLENE CHLORIDE 114 ppb
1, 2 DICHLOROETHANE 66 ppb
1, 1, 1 TRICHLOROETHANE 91 ppb
DIBROMOCHLOROMETHANE 185 ppb
SAMPLE 84-8-16-2 PLUME ON SURFACE
DEFINITELY GASOLINE
ALSO 1, 1, 1 TCE 1.4 ppb
METHYLENE CHLORIDE 11 ppb

RESULTS NOT VERIFIED. COPY TO BE FORWARDED NEXT WEEK.

☒ File
/ /
☐ Follow-Up By:
☐ Copy/Route To:

Follow-Up-Action: NEED TO RE-TEST MOORE & DAVENPORT WELLS.
SOIL BORINGS

Originator's Initials RTB

R. T. Brown
Originator

PHONE CONVERSATION RECORD

Conversation with:
Name MARTY RISCH
Company ESBH
Address GROUNDWATER TEAM

Phone 317-633-0840

Date 8/16/84
Time ____ AM/PM

☐ Originator Placed Call
☐ Originator Received Call

Subject FRANKLIN & INDIANA – ST. JOE RIVER

Notes: MARTY CALLED TO CLARIFY THAT ONLY TWO TANKS WERE KNOWN TO BE AT THE OLD GAS STATION — NOT FOUR AS PREVIOUSLY TOLD. HE ALSO CHECKED OUT THE TEST RESULTS ON DAVENPORT & MOORE RESIDENCE THAT WERE SAMPLED LAST YEAR. SAYS DAVENPORT SHOWED 69 PPB TRICHLOROETHYLENE & MOORE 34 PPB TCE. THE BLANK SHOWED CLEAN. NO TRACE OF AROMATIC HC'S WERE FOUND. FURTHER SAID 8PPB OF A GASOLINE SUBSTANCE WAS FOUND IN THE RIVER SAMPLE TAKEN (LAST YEAR BY PEG.) TOLD HIM WE TOOK ADDITIONAL SAMPLES.

(NOTE: TANKS REMOVED 8/15-16 — PLUME WORSE THAN EVER & POSSIBLY FROM DISTURBING GROUND?)

8/16 — JOE PETERS, MDK ALSO ON SCENE WITH FIRE DEPT. & ASKED BY ECHD TO RUN KENT-MOORE PRESSURE TEST ON HIS MOBIL RED-D-MART ACROSS THE ROAD.

☑ File ____
____/____/____

☐ Follow-Up By: ____

☐ Copy/Route To: ____

Follow-Up-Action: FIND OUT RESULTS OF MOBIL RED-D-MART PRESSURE TESTS

Originator's Initials RTB

R. T. Brown
Originator

PHONE CONVERSATION RECORD

Conversation with:
Name TONY JOHNSON
Company JOHN WALKER
Address ELK. CITY FIRE DEPT.

Date 8/24/84
Time 2 AM (PM)

☐ Originator Placed Call
☒ Originator Received Call

Phone

Subject INDIANA & FRANKLIN RIVER AREA

Notes: SPOKE TO TONY ABOUT GASOLINE SPILL PROBLEM. HE SAID THE FIRE DEPT. WOULD MONITOR THE ARRIVAL OF GASOLINE SHIPMENTS TO THE MOBIL RED-D-MART & ATTEMPT TO DRAW A CORRELATION BETWEEN FILLS & RIVER PLUME ACTIVITY.

SAID HE HADN'T BEEN ABLE TO TEST ANY BASEMENTS YET FOR FUMES.

ALSO SAID HE FELT PERHAPS SUBSTANCE WAS KEROSENE & OBSERVED SAME RED LIQUID WE SAMPLED LAST WEEK. FEELS WE MIGHT WANT TO DIG UP THE BANK.

TOLD HIM WE SAMPLED & SENT TO ISBH, BUT EXPECT LONG TURN-AROUND TIME. SAID HE MAY BE ABLE TO GET IT DONE SOONER.

☒ File

Follow-Up-Action:

___/___/___

☐ Follow-Up By:

☐ Copy/Route To:

Originator's Initials AB

CITY OF ELKHART
ELKHART, INDIANA 46516 • MUNICIPAL BUILDING, 229 SO. SECOND STREET • (219) 294-5471
JAMES P. PERRON, Mayor
IGINEERING
ıry A. Gilot, P.E. City Engineer
ax C. Gall, R.L.S. 1st Assistant
ıry Fleecer, Secretary

October 10, 1984

On this date, five (5) wells have been drilled. Only one well, that in the parking lot next to the advertising agency, has shown any sign of contamination. This well had heavily saturated soil at approx., 25 feet of depth. The sample was sent to Indianapolis for analysis and test results are pending. Dr. George Madany from USEPA was present at the site.

October 12, 1984

An underground storage tank was discovered on the RED-D-MART property. The tank contains sediments which smell like paint solvents or turpentine. These sediments were sent to the State for analysis.

During the drilling of this well (number 10), three aerosol cans were augered up. The labels read as follows:

A	B
Chemical Contents: Polymeric Isocyanite	Chemical Contents: Poly.....amines Flurocarbon

At 20 feet of depth, well number 10 had an "unusual odor", unlike others.

Well number 9- water table was hit at 13 feet. All others to date were at approx. 18 feet.

Week of October 15 thru 19, 1984

No on-site work was performed during this period. Analyses of soil and chemical samples was being done in Indianapolis. Work is expected to resume during the week of October 22 thru 26, once sample analyses have been completed and documented.

CITY OF ELKHART
ELKHART, INDIANA 46516 • MUNICIPAL BUILDING, 229 SO. SECOND STREET • (219) 294-5471
JAMES P. PERRON, Mayor

NGINEERING
ary A. Gilot, P E. City Engineer
lax C. Garl, R.L S. 1st Assistant
lary Reecer. Secretary

October 22, 1984

MEMO TO: Gary Gilot

MEMO FROM: David A. Bates

RE: Gasoline spill at Indiana and Franklin

Gary:

On October 9, a meeting was held at the Elkhart County Health Dept. to discuss the gasoline leak problem at Indiana and Franklin. In attendance were John Walker and Tony Johnson of the Elkhart Fire Dept., Richard Brown of the Elkhart County Health Dept., Dave Bates of the Elkhart WWTP, and Mark Mangun and Karl Suter of ATEC Assoc.

We discussed the locations of water and sewer lines in the area, the locations of industries in the area which could potentially be sources of contamination and the locations of old and existing service stations in the area.

Preliminary test results on samples of gasoline and residue from the site are:

Gasoline

1,1,1 Trichloroethylene	1.4 PPB
Methylene Chloride	11 PPB

"Red Glob" Residue

Methylene Chloride	114 PPB
1,2 Dichloroethene	66 PPB
1,1,1 Trichloroethylene	91 PPB
Dibromochloroethene	185 PPB

CITY OF ELKHART

ELKHART, INDIANA 46516 • MUNICIPAL BUILDING, 229 SO. SECOND STREET • (219) 294-5471

NGINEERING
ıary A. Gilot, P.E. City Engineer
ıax C. Garl, R.L.S. 1st Assistant
ıary Reecer, Secretary

JAMES P. PERRON, Mayor

INDIANA AVENUE AND FRANKLIN STREET GASOLINE LEAK- Daily report- October 26, 1984

On October 25, Jeff Stofferahn and Paul Aronian of Jacobs Engineering, on contract to the USEPA, tested several sanitary sewers in the area with an HNU Photoionizer which reads organic vapors in the atmosphere. The readings were as follows:

Indiana and Franklin- 200 PPM- Turbid water

Franklin and Lamar Ct.- sanitary- 210 PPM
storm- 15 PPM

Franklin and Krau- at CSO- 1 PPM

LaFayette and Thomas- 3 to 4 PPM

Oakland and Indiana- 40 to 50 PPM- Clear water

On October 26, Karl Suter and Tim Miller of ATEC Assoc. sampled water from all ten monitoring wells dug earlier this month. Product was found in well #6, in the parking lot next to the McGlinchey Promotion agy. Concentration of product in this sample is not yet known, but was visual, about one inch thick.

A meeting was held on the afternoon of October 26. In attendance were: Karl Suter and Tim Miller of ATEC Assoc., Tom Wilson and Richard Brown of Elkhart county Health Dept., Jeff Stofferahn and Paul Aronian of Jacobs Engineering Group, John Walker of the Elkhart Fire Dept., and Dave Bates of the Elkhart WWTP. The discussion was mainly concerned with preliminary sampling and analysis and what was to be the next step in the clean-up process. The possibility of constructing a boom with a skimming device to remove the product from the river was also discussed. ATEC Assoc. will prepare and send out a complete report on their findings as soon as all data has been collected and analyzed.

R T Brown
Originator

PHONE CONVERSATION RECORD

Conversation with:
Name KARL SUTER
Company ATEC
Address INDIANAPOLIS

Phone

Subject INDIANA & FRANKLIN

Date 11, 7, 84
Time 9:15 (AM)/PM

☐ Originator Placed Call
☒ Originator Received Call

Notes: KARL CALLED TO ASK IF I WOULD TAKE HC SAMPLES FROM MONITORING WELLS. HE WILL SEND TEST APPARATUS TODAY. WANTS TO KNOW IF PRODUCT IS MIGRATING. SHOULD CONCENTRATE ON WELL #6 NEAR PROMOTION AGENCY.

STILL NO TEST RESULTS AVAILABLE. WILL CONTACT WHEN CONCLUDED.

WANTED TO KNOW CASE CHRONOLOGY. ADVISED I WOULD WORK WITH ECHO STAFF TO DETERMINE & GET BACK TO HIM.

☒ File
11, 7, 84

☐ Follow-Up By:

☐ Copy/Route To:

Follow-Up-Action: TAKE TESTS & CONTACT ATEC WITH RESULTS.

Originator's Initials RTB

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ATEC Associates, Inc.
5150 East 65th Street
Indianapolis, IN 46220
Phone 317-849-4990

Date: 12-5-84

To: Mr. Rick Brown
Elkhart County Health Dept.
315 S. 2nd St
Elkhart IN 46516

Project Name: Elkhart Gasoline Seep
ATEC Project No.: 21-43162

Gentlemen:

We are sending you ☒ Enclosed ☐ Separately via ☒ Mail ☐ Messenger

☐ Drawings
☐ Prints
☐ Samples
☐ Literature/Letters
☒ LAB RESULTS

☐ For Approval
☐ For Re-submission
☒ For Your Information
☐ For Construction
☐ Approved As Noted
☐

Number	TYPE	DESCRIPTION
2	8½ x 11	Tabulated Laboratory results on Soil and water samples including sewer samples

Remarks: Rick -
I got a copy of the EPA TAT results from George M. They are very different from the results which we got. The samples tested by the TAT members were obtained on 10-25-84 while we obtained ours on 10-26-84. Furthermore the samples were obtained at a different time of day. If the numbers are real, then we probably got lucky with the TAT samples and dilution of the sewer effluent before it reached the treatment plant allowed it to pass unnoticed.

Please Return ☐ Copies to This Office

Copies of:	Trans.	Dwngs.	To
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	

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Yours very truly,

ATEC ASSOCIATES, INC.

By Karl E. Suter

Elkhart County Health Department

2400 ELKHART ROAD
GOSHEN, INDIANA 46526
PHONE: (219) 534-1404

January 4, 1985

STAN REEDY, M.D., M.P.H.
HEALTH OFFICER

Dr. George Madany, PhD
U.S. Environmental Protection Agency
Spill Response Section
536 S. Clark Street
Chicago, IL 60605

Dear George:

This letter will serve to confirm our phone conversation of Wednesday January 2. In this conversation you stated that the EPA would pay in full for the connection of the Moore and Davenport residences to city water. You also stated that you would like to see an absorbent boom placed on the river to trap and neutralize escaping product from the river bank. You further asked that I contact the above two residences and determine whether they would accept the offer of city water.

On January 3 and 4, I contacted the Moore and Davenport residences as requested and received a favorable reply to EPA's offer to supply city water at no charge to them.

It is now my understanding that the EPA does not wish to follow through on this offer due to the fact that measured levels of contamination found in these two private wells does not exceed current SNARLs. While I can understand the reasoning for these criteria, I cannot fully understand why the initial offer was made. As a result of this change of opinion on the part of the EPA, this office feels it necessary for you to contact these individuals directly explaining this new position. As there exists the potential for future contamination of these wells, due to measured levels of contaminants in nearby monitor wells which exceed SNARLs, this office would suggest that EPA keep its original offer.

Further, it is my opinion that a metal detector be utilized, as suggested in the ATEC report, to ascertain the existence of possible additional underground tanks in the area. I would also urge that the EPA make a clear determination of what constitutes an appropriate underground tank pressure test and inform appropriate parties involved in this case of such decision.

I do not feel erection of an absorbent boom in this area would help eliminate the problem. The fire department has also expressed a desire not to see this option utilized due to vapor concentration. As the river is in a state of flood, this option is particularly inapprorpiate at this time.

Sincerely,

Richard T. Brown

Richard T. Brown, M.P.A.
Groundwater Protection Specialist

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Elkhart County Health Department

2400 ELKHART ROAD
GOSHEN, INDIANA 46526
PHONE: (219) 534-1404

considered possible source in F & I problem

January, 10, 1985

Mr. John St. Cin
Seldom Rest Body Shop, Inc.
1317 W. Indiana Ave.
Elkhart, IN 46514

Dear Mr. St. Cin:

Enclosed is a list of firms in Indiana that handle hazardous waste. As previously suggested to you, I would be certain that the individual to whom you are offering your waste is licensed to do such. I would also be certain that your waste is being properly disposed of. Adequate recordkeeping is also important.

Due to the number of incidences of groundwater contamination in this county, we must all be careful and assure that all hazardous material and waste is properly managed. Solvents are of particular concern.

Should you have any question or concern, please do not hesitate to contact our office at 523-2272.

Sincerely,

Richard T. Brown

Richard T. Brown, M.P.A.
Groundwater Protection Specialist

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Elkhart County Health Department

2400 ELKHART ROAD
GOSHEN, INDIANA 46526
PHONE: (219) 534-1404

CONSIDERED POSSIBLE CONTAM. SOURCE - FRANKLIN & INDIANA PROBLEM.

SENT HAULER LIST & INFO BROCHURE 2/22/85.

SEEMS COOPERATIVE.

February 22, 1985

Mr. Fred Barclay
Seldom Rest Body Shop
1317 W. Indiana
Elkhart, IN 46514

Dear Mr. Barclay:

Enclosed is an updated list of firms able to handle hazardous waste within Indiana. You will notice that none of the local firms on your previous list are still in business. Please discard the old list. Many of the Indianapolis companies make "milk runs" in the area and arrangements can be made with them to stop by your business. I might suggest that you contact one of the following: Gold Shield, ILWD, or Reclaimed Energy. In the future you may wish to purchase your products from a firm that takes back waste product for reclamation. Two such local businesses are listed at the end of the enclosed list.

While the cost of proper disposal might be quite high, I cannot encourage you enough to see to it that all hazardous waste is disposed of properly. By late summer, you will be required by federal law to keep accurate records of who receives your waste and where it goes. I believe I discussed this with you earlier. Fines exceed proper disposal costs many times over. We all must work hard to assure that our drinking water supply is adequately protected.

I appreciate your concern to properly dispose of hazardous waste generated at your facility and encourage you to continue your efforts. If I can be of any further assistance, please do not hesitate to contact our office at 523-2272.

Sincerely,

Richard T. Brown

Richard T. Brown, M.P.A.
Groundwater Protection Specialist

193

ELKHART FIRE DEPARTMENT
ELKHART, INDIANA

SUPPLEMENTARY REPORT ON Gasoline leak in river at Indiana and Franklin

COMPLAINANT:
STREET ADDRESS:
CITY AND STATE:

CASE #
DATE: November 7, 1984
TIME:

Chief Bowlby;
This is an update on the situation involving the gasoline leak that has puzzled us for so many months. On 10-26-84, I met with Tom Wilson and Rick Brown of the County Health Dept and with representatives from the following two companiy's that were hired by the EPA as technical consultants to take the samples from the area:
ATEC Associates, INc, Indianapolis Karl Suter
Jacobs Engineering Group, Inc., Northbrook, Il Jeff Stofferahn
Also present was Dave Bates from the City Engineers office.
The EPA On-scene coordinator who heads up the investigation, George Madany, was supposed to be at the meeting, but did not appear.
During that meeting the concern over the EPA's direct involvement insofar as coordination and guidance was noted to be conspicuously absent. Atec is following up on the gasoline leak due to the funding source (Coast Guard). Karl believes the gasoline leak is local. Jeff relates that it is too early yet to make any quess as he has just today (10-26-84) taken samples from the sewers and has no tentative results. The County Health people are continuing to get reports of the gasoline odor and visible residue in the river.

As it stands today, I have the following to report concerning potential sources:

1. I have ruled out the Red D Mart after significant testing failed to substantiate those tanks as leaking.
2. Chris' Burger Dairy has been served notice to remove or fill the tanks. Chris states he knows the product was pumped out and will get a letter certifying same.
3. Russells Speed Shop will produce a letter certifying their tanks have been brought into compliance.
4. Byes Used Car lot is checking with the land owner to determine which course of action will be taken to deal with those tanks still in the ground.
5. Nipsco; on 11-7-84, I met with the man in charge of supplies, Ellis Burridge, he indicates they have a 6,000 gallon tank and they are off by inventory records from 30-90 gallons/month, but owe that to inaccurate records maintained by drivers. I advised him that we may ask to insert dye into the tank to determine if it is leaking and he indicated he didn't think it would be a problem. I contacted Larry Pozgay of WWTP and we agreed to check back with NIPSCO during the week of Nov 19 to possibly insert dye into the tank.

As of this date, I do not have any other significant leads to pursue and I will follow up only on those outstanding locations as listed above. I am maintaining contact with Rick Brown of the County Health Dept in reference to this situation.

John Walker

John Walker, Bureau Chief

Elkhart County Health Department

315 SO. SECOND ST.
ELKHART, INDIANA 46516
PHONE: (219) 523-2283

STAN REEDY, M.D., M.P.I
HEALTH OFFICER

June 8, 1987

Mr. Jeff Eads
UST Program/IDEM
105 South Meridian
Indianapolis, IN 46225

Dear Jeff,

I wish to call your attention for possible consideration for action using the LUST Trust Fund the Franklin Street and Indiana Avenue intersection site in Elkhart.

Attached is a copy of a December 17, 1984 project report prepared by ATEC Associates, Inc., for USEPA Region V. This report provides much background information concerning this site and outlines the scope of work performed by ATEC including the locations of ten monitoring wells which were installed.

Since 1984 gasoline continues to be intermittently released into the St. Joseph River from the river bank. Spot checks of water samples from monitoring well #6 have revealed free gasoline to occasionally be present in the groundwater. Also be advised that recent paving of the parking lot where monitoring wells #1, #6, and #9 are located has effectively taken them out of service.

Although drinking water supplies have not been affected by this incident, residents down stream complain of headaches caused by the gasoline plume when it is present. As expected the discharge of gasoline to the St. Joseph River has diminished since 1984, but, it remains a source of public health concern.

With the recent development of the LUST Trust Fund it is hoped that some measure of action beyond the "do nothing alternative" proposed by ATEC can be implemented at this site.

Thank you for your attention to this matter. If we can be of any assistance in this, or any other matter, feel free to contact us.

Sincerely,

Max D. Michael
Groundwater Protection Program Coordinator

MDM:mkt

195

State Form 4626R

Check Space

Branch		Eng. Div.	
Dental		EPA	
Other	ECHD		

INDIANA STATE BOARD OF HEALTH
Water & Sewage Laboratory Division
1330 West Michigan Street
P.O. Box 1964
INDIANAPOLIS, INDIANA 46206

Chemical Examination of Water

Do not write in this space

Lab. No. D 2189

Date Rec. AUG 2 3 1984

Date Rep.

RECEIVED
JAN 7 1985

FILL IN THIS SPACE. USE SOFT PENCIL.
Indiana State Board of Health is to mail report to

R.T. BROWN / ELKHART County HEALTH DEPT.
(Name)

315 S. SECOND ST.
(Street)

ELKHART 46516 INDIANA
(City or Town)

Also, mail copy of report to

Elk. Co. Health Dept.
(Name)

(Street)

INDIANA
(City or Town)

Name of Utility or Organization ELKHART COUNTY HEALTH DEPT. Supt.

City or Town

Collected by: R.T. BROWN Date Collected 8/16/84 Hour 10:45 AM

Where was sample collected? ST. JOSEPH RIVER AT FRANLIN/INDIANA INTERSECTION Bottle No. 84-8-16-1

Name unusual conditions STRONG GASOLINE ODOR! - LARGE PLUME - REDDISH OILY SUBSTANCE BUBBLING OUT OF BANK RIVER

FIELD INFORMATION

Indicate all treatment this sample has received.	Check
No Treatment	
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
pH	
CO2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA		
Turbidity			Cadmium as Cd		
pH			Chromium (Total)		
			Lead as Pb		
Hardness as CaCO3			Mercury as Hg		
MO Alk. as CaCO3			Selenium as Se		
PP Alk. as CaCO3			Silver as Ag		
Iron as Fe			Fluorides (direct) as F		
Manganese as Mn			Nitrates as N		
Calcium as Ca			Organics		
Magnesium as Mg			Endrin		
Sodium as Na			Lindane		
Potassium as K			Methoxychlor		
			Toxaphene		
Chlorides as Cl			2.4-D		
Sulphates as SO4			2.4,5-TP		
Phosphates as PO4					
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. µmhos/cm			Gross Beta		

REMARKS:

SUGGEST RUN ALL VOC - ESPECIALLY AROMATIC HC'S OR ANY OTHER RELATING TO PETROLEUM PRODUCTS.

COPIES -

S.B.H. 44-(08 (Rev. 6-83)

I.D. No. 84-8-16-1 Control No. _____ Page _____ of _____

Site: St Joseph River

Parameter	unit	R	
HALOGENATED VOL. ORGANICS	W/S/L		ppb
1,1-Dichloroethylene			<50.
1,1-Dichloroethane			A
Chloroform			
Carbon tetrachloride			
1,2-Dichloropropane			
Trichloroethylene			
1,1,2-Trichloroethane			
Dibromochloromethane			
Tetrachloroethylene			
Chlorobenzene			
Trichlorofluoromethane			V
trans-1,2-Dichloroethylene			<50.
1,2-Dichloroethane			66.
1,1,1-Trichloroethane			91.
Bromodichloromethane			<50.
trans-1,3-Dichloropropene			NDX
cis 1,3-Dichloropropene			NDX
[illegible]			<50.
2-chloro-ethylvinylether			<50.
Methylene Chloride			110
ACROLEIN/ACRYLONITRILE VOL. ORGANICS	W/S/L		ppb
Acrolein (PEG)			*
Acrylonitrile (PEG)			*
AROMATIC VOL. ORGANICS	W/S/L		ppb
Benzene			*
Toluene			*
Ethyl benzene			*
Xylenes			*
Purges held past holding time			

Parameter	unit	R	
BASE/NEUTRAL FRACTION			
Bis(2-Chloroethyl)ether			
1,3-Dichlorobenzene			
1,4-Dichlorobenzene			
1,2-Dichlorobenzene			
N-Nitroso-di-n-Dipropylamine			
Nitrobenzene			
Hexachloroethane			
Isophorone			
Bis(2-Chloroethoxy)methane			
1,2,4-Trichlorobenzene			
Naphthalene			
Hexachlorobutadiene			
Hexachlorocyclopentadiene			
2-Chloronaphthalene			
2,6-Dinitrotoluene			
Dimethylphthalate			
Acenaphthylene			
Acenaphthene			
2,4-Dinitrotoluene			
Diethylphthalate			
Fluorene			
N-Nitrosodiphenylamine			
4-Bromophenylphenylether			
Hexachlorobenzene			
Phenanthrene			
Anthracene			
Di-n-butylphthalate			
Fluoranthene			
Pyrene			
Butylbenzylphthalate			
Benzo a anthracene			
Chrysene			
Bis(2-Ethylhexyl)phthalate			
Di-n-octylphthalate			
Benzo a pyrene	mg/L		ppm
* Gasoline found			82.

Parameter	unit	R	
ORGANOCHLORINE PESTICIDES			
alpha-BHC			
beta-BHC			
gamma-BHC			
delta-BHC (Lindane)			
Heptachlor			
Heptachlor epoxide			
Aldrin			
Endosulfan I			
pp'(4,4') DDE			
Dieldrin			
Endrin			
pp'(4,4') DDD			
Endosulfan II			
pp'(4,4') DDT			
Endosulfan Sulfate			
Methoxychlor			
Chlordane			
Toxaphene			
PCB'S			
PCB-1016			
PCB-1221			
PCB-1232			
PCB-1242			
PCB-1248			
PCB-1254			
PCB-1260			
PHENOLS			
Phenols			
2-Chlorophenol			
2-Nitrophenol			
2,4-Dimethylphenol			
2,4-Dichlorophenol			
p-Chloro-m-Cresol			
2,4,6-Trichlorophenol			
4-Nitrophenol			
4,6-Dinitro-o-Cresol			
Pentachlorophenol			
2,4-Dinitrophenol			

* No Std.

197

Lab. No. D2189 Date 8 12 3 84

State Form 4626R

Check Space			
Branch		Eng. Div.	
Dental		EPA	
Other	ECHD		

INDIANA STATE BOARD OF HEALTH
Water & Sewage Laboratory Division
1330 West Michigan Street
P.O. Box 1964
INDIANAPOLIS, INDIANA 46206-1964

Chemical Examination of Sewage

Do not write in this space
Lab. No. D 2190
Date Rec. AUG 23 1984
Date Rep.

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JAN 7 1985

FILL IN THIS SPACE. USE SOFT PENCIL.
Indiana State Board of Health is to mail report to
R.T. BROWN / ELKHART COUNTY HEALTH DEPT.
(Name)
315 S. SECOND ST.
(Street)
ELKHART 46516 INDIANA
(City or Town)

Also, mail copy of report to
(Name) Elk. Co. Health Dept.
(Street)
INDIANA
(City or Town)

Name of Utility or Organization ELKHART COUNTY HEALTH DEPT. Supt.

City or Town

Collected by: R.T. BROWN Date Collected 8/16/84 Hour 10:50 AM

Where was sample collected? ST. JOSEPH RIVER - FRANKLIN / INDIANA INTERSECTION Bottle No. 84-8-16-2

Name unusual conditions STRONG GASOLINE ODOR! - LARGE PLUME - "RAINBOW" SLICK APPEARANCE ON WATER SURFACE.

FIELD INFORMATION

Indicate all treatment this sample has received.

	Check
No Treatment	
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
pH	
CO2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA		
Turbidity			Cadmium as Cd		
pH			Chromium (Total)		
			Lead as Pb		
Hardness as CaCO3			Mercury as Hg		
MO Alk. as CaCO3			Selenium as Se		
PP Alk. as CaCO3			Silver as Ag		
Iron as Fe			Fluorides (direct) as F		
Manganese as Mn			Nitrates as N		
Calcium as Ca			Organics		
Magnesium as Mg			Endrin		
Sodium as Na			Lindane		
Potassium as K			Methoxychlor		
			Toxaphene		
Chlorides as Cl			2,4-D		
Sulphates as SO4			2,4,5-TP		
Phosphates as PO4					
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. μmhos/cm			Gross Beta		

REMARKS:
SUGGEST RUN ALL VOC - ESPECIALLY AROMATIC HC'S OR ANY OTHER RELATING TO PETROLEUM PRODUCTS.

COPIES—

198

I.D. No. 84-8-16-2 Control No. ____________ Page ____ of ____

Site: ST JOSEPH RIVER

Parameter	units	
HALOGENATED VOL. ORGANICS	ug/l	ppb
1,1-Dichloroethylene		<1.0
1,1-Dichloroethane		↑
Chloroform		
Carbon Tetrachloride		
1,2-Dichloropropane		
Trichloroethylene		
1,1,2-Trichloroethane		
Dibromochloromethane		
Tetrachloroethylene		
Chlorobenzene		
Trichlorofluoromethane		
trans-1,2-Dichloroethylene		↓
1,2-Dichloroethane		<1.0
1,1,1-Trichloroethane		1.4
Bromodichloromethane		<1.0
trans-1,3-Dichloropropene		ND*
cis 1,3-Dichloropropene		ND*
Bromoform		<1.0
1,1,2,2-Tetrachloroethane		<1.0
Methylene Chloride		11.
NONHALOGENATED VOL. ORGANICS	ug/l	ppb
Methyl ethyl ketone (MEK)		<30.
Methyl isobutyl ketone (MIBK)		<30.
Acetone		<30.
AROMATIC VOL. ORGANICS	ug/l	ppb
Benzene		<3.0
Toluene		<3.0
Ethyl benzene		<3.0
Xylenes		<60.
Purges held past holding time		

* No Std

Parameter	units	
BASE/NEUTRAL FRACTION		
bis(2-Chloroethyl)ether		
1,3-Dichlorobenzene		
1,4-Dichlorobenzene		
1,2-Dichlorobenzene		
n-Nitroso-n-Dipropylamine		
Nitrobenzene		
Hexachloroethane		
Isophorone		
bis(2-Chloroethoxy)methane		
1,2,4-Trichlorobenzene		
Naphthalene		
Hexachlorobutadiene		
Hexachlorocyclopentadiene		
2-Chloronaphthalene		
2,6-Dinitrotoluene		
Dimethylphthalate		
Acenaphthalene		
Acenaphthene		
2,4-Dinitrotoluene		
Diethylphthalate		
Fluorene		
n-Nitrosodiphenylamine		
4-Bromophenylphenylether		
Hexachlorobenzene		
Phenanthrene		
Anthracene		
Di-n-butylphthalate		
Fluoranthene		
Pyrene		
Butylbenzylphthalate		
Benzo a)anthracene		
Chrysene		
bis(2-Ethylhexyl)phthalate		
Di-n-octylphthalate		
Benzo a)pyrene		

Parameter	units	
ORGANOCHLORINE PESTICIDES		
alpha-BHC		
beta-BHC		
gamma-BHC		
delta-BHC (Lindane)		
Heptachlor		
Heptachlor epoxide		
Aldrin		
Endosulfan I		
pp'(4,4') DDE		
Dieldrin		
Endrin		
pp'(4,4') DDD		
Endosulfan II		
pp'(4,4') DDT		
Endosulfan Sulfate		
Methoxychlor		
Chlordane		
Toxaphene		
PCB'S		
PCB-1016		
PCB-1221		
PCB-1232		
PCB-1242		
PCB-1248		
PCB-1254		
PCB-1260		
PHENOLS		
Phenol		
2-Chlorophenol		
2-Nitrophenol		
2,4-Dimethylphenol		
2,4-Dichlorophenol		
p-Chloro-m-Cresol		
2,4,6-Trichlorophenol		
4-Nitrophenol		
4,6-Dinitro-o-Cresol		
Pentachlorophenol		
2,4-Dinitrophenol		

Lab No. D2190 Date 8/23/84

State Form 4626R

Check Space

Branch		Eng. Div.	
Dental		EPA	
Other	ECHD		

INDIANA STATE BOARD OF HEALTH
Water & Sewage Laboratory Division
1330 West Michigan Street
P.O. Box 1964
INDIANAPOLIS, INDIANA 46206-1964

Chemical Examination of Water

Do not write in this space

Lab. No. D 2191

Date Rec. AUG 23 1984

Date Rep. _____

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JAN 7 1985

FILL IN THIS SPACE. USE SOFT PENCIL.
Indiana State Board of Health is to mail report to

R. T. BROWN / ELKHART COUNTY HEALTH DEPT.
(Name)

315 S. SECOND ST.
(Street)

ELKHART 46516 INDIANA
(City or Town)

Also, mail copy of report to

(Name)

~~Elk. Co. Health Dept.~~
(Street)

INDIANA
(City or Town)

Name of Utility or Organization ELKHART COUNTY HEALTH DEPARTMENT Supt. _____

City or Town ELKHART

Collected by: R. T. BROWN Date Collected 8/16/84 Hour 10:30 AM

Where was sample collected? BLANK Bottle No. 84-8-16-0

Name unusual conditions _____

FIELD INFORMATION

Indicate all treatment this sample has received.

	Check
No Treatment	
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
pH	
CO2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA		
Turbidity			Cadmium as Cd		
pH			Chromium (Total)		
			Lead as Pb		
Hardness as CaCO3			Mercury as Hg		
MO Alk. as CaCO3			Selenium as Se		
PP Alk. as CaCO3			Silver as Ag		
Iron as Fe			Fluorides (direct) as F		
Manganese as Mn			Nitrates as N		
Calcium as Ca			Organics		
Magnesium as Mg			Endrin		
Sodium as Na			Lindane		
Potassium as K			Methoxychlor		
			Toxaphene		
Chlorides as Cl			2,4-D		
Sulphates as SO4			2,4,5-TP		
Phosphates as PO4					
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. μmhos/cm			Gross Beta		

REMARKS:

300

COPIES -

I.D. No. 84-8-16-0 Control No. ____________

Site: BLANK

Parameter	units	x	
HALOGENATED VOL. ORGANICS		✓	*
1,1-Dichloroethylene			
1,1-Dichloroethane			
Chloroform			
Carbon Tetrachloride			
1,2-Dichloropropane			
Trichloroethylene			
1,1,2-Trichloroethane			
Dibromochloromethane			
Tetrachloroethylene			
Chlorobenzene			
Trichlorofluoromethane			
trans-1,2-Dichloroethylene			
1,2-Dichloroethane			
1,1,1-Trichloroethane			
Bromodichloromethane			
trans-1,3-Dichloropropene			
cis 1,3-Dichloropropene			
[illegible]			
1,1,2,2-Tetrachloroethane			
NONHALOGENATED VOL. ORGANICS		✓	*
Methyl ethyl ketone (MEK)			
Methyl isobutyl ketone (MIBK)			
AROMATIC VOL. ORGANICS		✓	*
Benzene			
Toluene			
Ethyl benzene			
Xylenes			

Parameter	units	x	
BASE/NEUTRAL FRACTION			
Bis(2-Chloroethyl)ether			
1,3-Dichlorobenzene			
1,4-Dichlorobenzene			
1,2-Dichlorobenzene			
n-Nitroso-n-dipropylamine			
Nitrobenzene			
Hexachloroethane			
Isophorone			
Bis(2-Chloroethoxy)methane			
1,2,4-Trichlorobenzene			
Naphthalene			
Hexachlorobutadiene			
Hexachlorocyclopentadiene			
2-Chloronaphthalene			
2,6-Dinitrotoluene			
Dimethylphthalate			
Acenaphthalene			
Acenaphthene			
2,4-Dinitrotoluene			
Diethylphthalate			
Fluorene			
n-Nitrosodiphenylamine			
4-Bromophenylphenylether			
Hexachlorobenzene			
Phenanthrene			
Anthracene			
Di-n-butylphthalate			
Fluoranthene			
Pyrene			
Butylbenzylphthalate			
Benzo a)anthracene			
Chrysene			
bis(2-Ethylhexyl)phthalate			
Di-n-octylphthalate			
Benzo a)pyrene			

Parameter	units	x
ORGANOCHLORINE PESTICIDES		
alpha-BHC		
beta-BHC		
gamma-BHC		
delta-BHC (Lindane)		
Heptachlor		
Heptachlor epoxide		
Aldrin		
Endosulfan I		
pp'(4,4') DDE		
Dieldrin		
Endrin		
pp'(4,4') DDD		
Endosulfan II		
pp'(4,4') DDT		
Endosulfan Sulfate		
Methoxychlor		
Chlordane		
Toxaphene		
PCB'S		
PCB-1016		
PCB-1221		
PCB-1232		
PCB-1242		
PCB-1248		
PCB-1254		
PCB-1260		
PHENOLS		
Phenols		
2-Chlorophenol		
2-Nitrophenol		
2,4-Dimethylphenol		
2,4-Dichlorophenol		
p-Chloro-m-Cresol		
2,4,6-Trichlorophenol		
4-Nitrophenol		
4,6-Dinitro-o-Cresol		
Pentachlorophenol		
2,4-Dinitrophenol		

* Blank did not originate in Organic Lab. Therefore, blank was discarded as invalid.

Lab. No. D2191 Date 8/23/84

Rec'd TX M. Bisch - R. Brown Oct 31 B5

MEMO

Date _____

From _____

To _____

Subject _____

preliminary results from Franklin & Indiana MW#7 on RED-D-MART property

PPB

MEK - 1,400,000
↳ 570,000

BENZENE - 930,000

TOLUENE - 1,800,000

XYLENE - 3,700,000

FUEL OIL - 630,000

1,1,1 TCA - 5,600

1,1 DICHLOR - 44,000

State Form 4626R

Check Space

Branch	Eng. Div.
Dental	NOV 4 1985
Other	Elk. Co. Health Dept.

RECEIVED

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
1330 West Michigan Street
P.O. Box 1964
INDIANAPOLIS, INDIANA 46206-1964

Chemical Examination of Water

Do not write in this space

Lab. No. C. D2722

Date Rec. SEP 17 1985

Date Rep. _____

FILL IN THIS SPACE. USE SOFT PENCIL.
Indiana State Board of Health is to mail report to

(Name) Elkhart County Health Department

(Street) 315 S. Second St.

(City or Town) Elkhart, IN. 46514 INDIANA

ATTN. R.T. Brown

Also, mail copy of report to

(Name) Marty Risch

(Street) Groundwater Section

(City or Town) IDEM - WPCD INDIANA

Name of Utility or Organization RED-D-MART Supt. _____

City or Town FRNKLIN & INDIANA ELKHART

Collected by: R.T. Brown Date Collected 9/6/85 Hour 2:32 p

Where was sample collected? MONITOR WELL #7 Bottle No. #7A

Name unusual conditions _____

FIELD INFORMATION

Indicate all treatment this sample has received.

	Check
No Treatment	
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
pH	
CO2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l
Odor		
Color		
Turbidity		
pH		
Hardness as CaCO3		
MO Alk. as CaCO3		
PP Alk. as CaCO3		
Iron as Fe		
Manganese as Mn		
Calcium as Ca		
Magnesium as Mg		
Sodium as Na		
Potassium as K		
Chlorides as Cl		
Sulphates as SO4		
Phosphates as PO4		
Alum as Al		
Sp. Cond. µmhos/cm		

	Check	Do not Check mg/l
Arsenic as As		
Barium as BA		
Cadmium as Cd		
Chromium (Total)		
Lead as Pb		
Mercury as Hg		
Selenium as Se		
Silver as Ag		
Fluorides (direct) as F		
Nitrates as N		
Organics see reverse side	X	
Endrin		
Lindane		
Methoxychlor		
Toxaphene		
2,4-D		
2,4,5-TP		
Radionuclides		pCi/l
Gross Alpha		
Gross Beta		

REMARKS:

VOC's

bubble in vial

203

S.B.H. 44-006 (Rev. 6-83)

Results are expressed in terms of mg/l except for odor, color, turbidity, pH and specific conductance.

Parameter	unit	s	
"HALOGENATED VOL. ORGANICS"	ppb	✓	(µg/l)
1,1-DICHLOROETHYLENE			<1.0
1,1-DICHLOROETHANE			↑
CHLOROFORM			
CARBON TETRACHLORIDE			
1,2-DICHLOROPROPANE			
TRICHLOROETHYLENE			↓
1,1,2-TRICHLOROETHANE			<1.0
DIBROMOCHLOROMETHANE			2000
TETRACHLOROETHYLENE			<1.0
CHLOROBENZENE			<1.0
TRICHLOROFLUOROMETHANE			<1.0
TRANS-1,2-DICHLOROETHYLENE			<1.0
1,2-DICHLOROETHANE			44000
1,1,1-TRICHLOROETHANE			5600
BROMODICHLOROMETHANE			<1500
TRANS-1,3-DICHLOROPROPENE			*
CIS 1,3-DICHLOROPROPENE			*
BROMOFORM			<1.0
1,1,2,2-TETRACHLOROETHANE			<1.0
Me Cl$_2$			78000
NONHALOGENATED VOL. ORGANICS	ppb	✓	µg/l
METHYL ETHYL KETONE (MEK)			1,400,000
METHYL ISOBUTYL KETONE (MIBK)			570,000
Acetone			<30.
AROMATIC VOL. ORGANICS		✓	
BENZENE			930,000
TOLUENE			1,800,000
ETHYL BENZENE			300,000
XYLENES			3700,000

Parameter	unit	s	
BASE/NEUTRAL FRACTION			
BIS(2-CHLOROETHYL)ETHER			
1,3-DICHLOROBENZENE			
1,4-DICHLOROBENZENE			
1,2-DICHLOROBENZENE			
N-NITROSO-DI-N-PROPYLAMINE			
NITROBENZENE			
HEXACHLOROETHANE			
ISOPHORONE			
BIS(2-CHLOROETHOXY)METHANE			
1,2,4-TRICHLOROBENZENE			
NAPHTHALENE			
HEXACHLOROBUTADIENE			
HEXACHLOROCYCLOPENTADIENE			
2-CHLORONAPHTHALENE			
2,6-DINITROTOLUENE			
DIMETHYLPHTHALATE			
ACENAPHTHYLENE			
ACENAPHTHENE			
2,4-DINITROTOLUENE			
DIETHYLPHTHALATE			
FLUORENE			
N-NITROSODIPHENYLAMINE			
4-BROMOPHENYLPHENYLETHER			
HEXACHLOROBENZENE			
PHENANTHRENE			
ANTHRACENE			MC
DI-N-BUTYLPHTHALATE			
FLUORANTHENE			
PYRENE			
BUTYLBENZYLPHTHALATE			
BENZO(A)ANTHRACENE			
CHRYSENE			
BIS(2-ETHYLHEXYL)PHTHALATE			
DI-N-OCTYLPHTHALATE			
BENZO(A)PYRENE			

Parameter	unit	s	
ORGANOCHLORINE PESTICIDES			
ALPHA-BHC			
BETA-BHC			
GAMA-BHC			
DELTA-BHC (LINDANE)			
HEPTACHLOR			
HEPTACHLOR EPOXIDE			
ALDRIN			
ENDOSULFAN I			
PP'(4,4') DDE			
DIELDRIN			
ENDRIN			
PP'(4,4') DDD			
ENDOSULFAN II			
PP'(4,4') DDT			
ENDOSULFAN SULFATE			
METHOXYCHLOR			
CHLORDANE			
TOXAPHENE			
2,4-D			
2,4,5-TP			
PCB'S			
PCB-1016			
PCB-1221			
PCB-1232			
PCB-1242			
PCB-1248			
PCB-1254			
PCB-1260			
PHENOLS			
PHENOLS			
2-CHLOROPHENOL			
2-NITROPHENOL			
2,4-DIMETHYLPHENOL			
2,4-DICHLOROPHENOL			
p-CHLORO-m-CRESOL			
2,4,6-TRICHLOROPHENOL			
4-NITROPHENOL			
4,6-DINITRO-O-CRESOL			
PENTACHLOROPHENOL			
2,4-DINITROPHENOL			

* Fuel Oil @ 30,000 ppm

* NO STDS

Lab. No. _____ Date / /

State Form 4626A

Check Space

Branch | Eng. Div.

Dental

Other Elk. Co. Health Dept.

RECEIVED NOV EPA 4 1985

INDIANA STATE BOARD OF HEALTH
Water & Sewage Laboratory Division
1330 West Michigan Street
P.O. Box 1964
INDIANAPOLIS, INDIANA 46206-1964

Chemical Examination of Water

Do not write in this space

Lab. No. C D2723

Date Rec. SEP 17 1985

Date Rep. _____

FILL IN THIS SPACE. USE SOFT PENCIL.
Indiana State Board of Health is to mail report to

(Name) Elkhart County Health Department

(Street) 315 S. Second St.

(City or Town) Elkhart, IN. 46514 INDIANA

ATTN. R.T. Brown

Also, mail copy of report to

(Name) Marty Risch

(Street) Groundwater Section

ISBH - WPCD

(City or Town) INDIANA

Name of Utility or Organization FIELD BLANK Supt. _____

City or Town _____

Collected by: _____ Date Collected 9/6/85 Hour _____

Where was sample collected? _____ Bottle No. _____

Name unusual conditions _____

FIELD INFORMATION

Indicate all treatment this sample has received.	Check
No Treatment	
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
pH	
CO2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA		
Turbidity			Cadmium as Cd		
pH			Chromium (Total)		
			Lead as Pb		
Hardness as CaCO3			Mercury as Hg		
MO Alk. as CaCO3			Selenium as Se		
PP Alk. as CaCO3			Silver as Ag		
Iron as Fe			Fluorides (direct) as F		
Manganese as Mn			Nitrates as N		
Calcium as Ca			Organics see reverse side	X	
Magnesium as Mg			Endrin		
Sodium as Na			Lindane		
Potassium as K			Methoxychlor		
			Toxaphene		
Chlorides as Cl			2.4-D		
Sulphates as SO4			2.4.5-TP		
Phosphates as PO4					
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. μmhos/cm			Gross Beta		

REMARKS: bubble

205

S.B.H. 44-006 (Rev. 6-83)

Results are expressed in terms of mg/l except for odor, color, turbidity, pH and specific conductance.

Parameter	unit	x	
HALOGENATED VOL. ORGANICS*	ppb	✓	(µg/l)
1,1-DICHLOROETHYLENE			<1.0
1,1-DICHLOROETHANE			
CHLOROFORM			
CARBON TETRACHLORIDE			
1,2-DICHLOROPROPANE			
TRICHLOROETHYLENE			
1,1,2-TRICHLOROETHANE			
BROMODICHLOROMETHANE			
TETRACHLOROETHYLENE			<1.0
CHLOROBENZENE			<3.8
TRICHLOROFLUOROMETHANE			<1.0
trans-1,2-DICHLOROETHYLENE			
1,2-DICHLOROETHANE			
1,1,1-TRICHLOROETHANE			
BROMODICHLOROMETHANE			<1.0
trans-1,3-DICHLOROPROPENE			*
CIS 1,3-DICHLOROPROPENE			*
BROMOFORM			<1.0
1,1,2,2-TETRACHLOROETHANE			<1.0
CH_2Cl_2			<5.0
NONHALOGENATED VOL. ORGANICS	ppb	✓	(µg/l)
METHYL ETHYL KETONE (MEK)			<80.
METHYL ISOBUTYL KETONE (MIBK)			<30.
Acetone			<200
AROMATIC VOL. ORGANICS	ppb	✓	(µg/l)
BENZENE			<10.
TOLUENE			<3.0
ETHYL BENZENE			<3.0
XYLENES			<60.

* NOS10's

Parameter	unit	x	
BASE/NEUTRAL FRACTION			
BIS(2-CHLOROETHYL)ETHER			
1,3-DICHLOROBENZENE			
1,4-DICHLOROBENZENE			
1,2-DICHLOROBENZENE			
n-NITROSO-di-n-PROPYLAMINE			
NITROBENZENE			
HEXACHLOROETHANE			
ISOPHORONE			
BIS(2-CHLOROETHOXY)METHANE			
1,2,4-TRICHLOROBENZENE			
NAPHTHALENE			
HEXACHLOROBUTADIENE			
HEXACHLOROCYCLOPENTADIENE			
2-CHLORONAPHTHALENE			
2,6-DINITROTOLUENE			
DIMETHYLPHTHALATE			
ACENAPHTHALENE			
ACENAPHTHENE			
2,4-DINITROTOLUENE			
DIETHYLPHTHALATE			
FLUORENE			
n-NITROSODIPHENYLAMINE			
4-BROMOPHENYLPHENYLETHER			
HEXACHLOROBENZENE			#10
PHENANTHRENE			
ANTHRACENE			
DI-n-BUTYLPHTHALATE			
FLUORANTHENE			
PYRENE			
BUTYLBENZYLPHTHALATE			
BENZO(A)ANTHRACENE			
CHRYSENE			
BIS(2-ETHYLHEXYL)PHTHALATE			
DI-n-OCTYLPHTHALATE			
BENZO(A)PYRENE			

Parameter	unit	x	
ORGANOCHLORINE PESTICIDES			
ALPHA-BHC			
BETA-BHC			
GAMA-BHC			
DELTA-BHC (LINDANE)			
HEPTACHLOR			
HEPTACHLOR EPOXIDE			
ALDRIN			
ENDOSULFAN I			
PP'(4,4') DDE			
DIELDRIN			
ENDRIN			
PP'(4,4') DDD			
ENDOSULFAN II			
PP'(4,4') DDT			
ENDOSULFAN SULFATE			
METHOXYCHLOR			
CHLORDANE			
TOXAPHENE			
2,4-D			
2,4,5-TP			
PCB'S			
PCB-1016			
PCB-1221			
PCB-1232			
PCB-1242			
PCB-1248			
PCB-1254			
PCB-1260			
PHENOLS			
PHENOLS			
2-CHLOROPHENOL			
2-NITROPHENOL			
2,4-DIMETHYLPHENOL			
2,4-DICHLOROPHENOL			
p-CHLORO-m-CRESOL			
2,4,6-TRICHLOROPHENOL			
4-NITROPHENOL			
4,6-DINITRO-o-CRESOL			
PENTACHLOROPHENOL			
2,4-DINITROPHENOL			

Lab. No. _____ Date / /